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ADDRESSES AND ORIGINAL ARTICLES

THE MEDICAL AND PSYCHOLOGICAL ASPECTS OF GYNÆCOLOGY.*

BY JOHN S. FAIRBAIRN, B.M., B.CH. OXF., F.R.C.P. LOND., F.R.C.S. ENG., F.C.O.G.,

CONSULTING OBSTETRIC PHYSICIAN TO ST. THOMAS'S HOSPITAL.

ETYMOLOGICALLY the term gynæcology should cover both midwifery and the diseases of women, but the title that should belong to the whole has been usurped by a part, largely owing to a separation in practice between the two which occurred during the developmental stages of gynæcology. This drift-apart arose from maternity cases being excluded from the general and segregated in special hospitals, from fear of puerperal sepsis in pre-Listerian days, and from advances in gynæcology being so far along purely surgical lines that a type of surgeon-gynæcologist arose, and time was when a real divorce between the two divisions of the subject might have taken place. But recent developments have been in the opposite direction, and a greater realisation of the essential unity of midwifery and the diseases of women has been a characteristic feature of recent thought, and the reasons leading up to it are worthy of consideration.

Essential Unity of Gynæcology.

Probably the infusion of the ideals of preventive medicine has done more than anything else to draw together the two sides that had tended to separate from accidental and temporary causes. The preventive bias of mind made clear the illogical and artificial nature of divorcing the physiological from the pathological and the preventive from the remedial aspects and the narrower outlook engendered thereby. For example, the provision for postnatal care in order to lessen disability, immediate and remote, from the diseases and accidents of childbearing at once forged a link binding the two in a more intimate union. So, too, the agitation over the static maternal mortality-rate drew attention to the weaknesses of a divided training of the medical student in two parts of a subject with a common scientific basis. About five years ago I reviewed † the old system, tracing the gradual unification of training in both sections together and advocating a period of whole-time clinical service in midwifery, infant hygiene, and gynæcology.

The tendency in this country and in Germany towards integration is not seen everywhere or to the same degree, and in France seems to be rather in the direction of differentiation, while in America there are two schools of thought moving in opposite directions. In one the diseases of women are being developed on surgical and pathological lines away from obstetrics, while the other follows the same lines as here. The views of the separatist school were recently set out [1] before the British Medical Association by one of its chief advocates, Prof. Cullen of Baltimore, who regards gynæcology as a surgical specialty wholly detached from obstetrics but with further extensions into abdominal and urinary surgery, and solely for the old reasons of convenience, technique, and operative experience. On the other hand, his predecessor in the chair at Johns Hopkins, Prof. Kelly, in his preface to a collective work [2] from his school, anticipates the return of gynæcology to her ancestral home and her obstetric mother. The question of the unity of obstetrics and gynæcology, although not completely solved, is much more than a mere doctrinaire abstraction, for it determines the attitude of mind in which the subject is approached and practised, and much of my argument will be occupied in pointing out the failures resulting from too great concentration on the mechanical side, with a relative neglect of the medical and psychological aspect

Although those practising other specialties undertake the therapeutics, whether medical or surgical, gynæcology is outstanding in its union of medicine and surgery in practice, I may quote, as an independent witness, Sir George Newman [3] who says, "... the obstetrician and gynæcologist is the great example of the unity of medicine and surgery in actual practice. Here is the full integration." It is in the diseases of women where progress on the surgical side has been so marked that failure to maintain the balance on the medical side has chiefly occurred, and more attention to the medical side is overdue if a proper balance and the repute of gynæcology are to be maintained.

ITS SEX-LINKED CHARACTER.

Gynæcology has moreover a feature that is not shared with any other branch of medicine in that its practice is limited to one sex, and my contention is that those professing it should be much more than surgeons with a special flair for the female pelvic organs. Their insight into womankind should surely be something more than that disclosed by their inspections of the varying anatomical and pathological appearances met with in the reproductive apparatus. It is in this regard that the gynæcologist has, in my opinion, failed to make the most of his undoubted opportunities, and I will follow the matter a little further.

The differentia of the sexes must extend further and deeper than the obvious structural and functional characters. Sex is determined at the union of the gametes and sex-differentiation begins early in fœtal life by hormonic agency, the accessory genital apparatus and external genitalia being moulded to the type appropriate to the sex of the gonad. Even skeletal changes become noticeable in fœtal life in the female shape of the pelvis, and these and other characteristics of the sex, physical and psychical, are apparent throughout childhood, and culminate in the development of the secondary sexual characters at puberty. Aschner, of Vienna, in a monograph [4] on what he calls the constitution of woman, which has never received from gynæcologists in this country the attention it merits, has described certain differences in the female tissues shown by their response to external influences.

Though not altogether convincing, Aschner's work suggests a line worth following. He thinks there is a lessened tone and greater tendency to laxity in her tissues, as shown by the frequency of weakness of the muscles of the abdomen and pelvic floor with ptosis of viscera, great liability to herniæ, varicosities and to such functional deficiencies as intestinal stasis, uterine inertia, and atonic hæmorrhages. He also thinks there is a more rapid and extensive production of blood and other body fluids, and that women bear loss of blood better than men.

* The Bradshaw Lecture delivered before the Royal College of Physicians of London on Nov. 3rd, 1931. The lecture has been developed from an address to the Glasgow Obstetrical Society.

† THE LANCET, 1927, ii., 163.

It will be noticed that many of the conditions he instances are more simply explained as due to childbearing, or to differences in mode of life or occupation. Aschner's most interesting point, however, is that the difference between the female and the child in constitution is less sharply marked than that between male and female. Woman exhibits the greater excitability of childhood, and a tendency to diseases of a similar type, such as chorea, convulsions, skin eruptions, digestive atony, adiposity, and local or general infantilism. Stress is also laid on the greater irritability and sensitiveness of the nervous system, shown by a heightened reflex excitability, especially vasomotor, and wider spread of its effects; greater tendency to fainting, convulsions, psychoses, and a more marked response to suggestion, hypnosis, and environmental conditions.

I do not want to labour these differences beyond regarding the conception of a special sex-constitution as calling for further investigation. Putting them on one side there yet remains the far greater share of the reproductive process that falls on the woman, which must carry with it to an equivalent degree causes and occasions for the production of psychic effects arising out of the primitive sex and reproductive instincts. The physical and the psychical are closely related, disorder in the one producing disorder in the other with a large proportion of conditions of an intermediate type with disturbance of function of minor degree that must be regarded from both aspects if a correct perspective is to be obtained. Gynæcology has moved appreciably in the direction of recognising the interdependence of the two, but the movement has not as yet attained such proportions that gynæcological therapeutics can escape criticism from professional brethren, both within and without its own ranks. A mechanical cause and mechanical treatment still hold too prominent a place, and the psychical is not taken sufficiently into account even in cases in which the disability is more general than local.

The Dominance of Mechanistic Views.

Mechanical explanations and mechanical cures for the ills of the human body make an irresistible appeal to the simplest and meanest intelligence and is the reason for their remarkable persistence. Their dominance is well illustrated in the history of gynæcology, which is a branch of medicine that has but recently grown out from the main trunk. If we look back to the early 'eighties when the surgical advance was beginning to gain momentum, we find criticisms of gynæcological practice on similar lines to those of the past ten years, when the rate of advance has seemingly shown signs of slackening, for the time being at any rate. In the earlier period two outstanding figures in British gynæcology were Lawson Tait, leading the surgical division, before which the old tinkering methods were giving way, and Matthews Duncan on the medical side, who was holding, but scarcely gaining, ground. With his keen critical faculty and wide vision, Duncan poured scorn on his gynæcological brethren for their mechanical ideas and practice. He was especially severe on the craze for the pessary in the treatment of what he termed the minor displacements of the uterus and ascribed any benefit the patient might obtain to the enthusiasm of patient and practitioner in the simplicity of the mechanical explanation of the cause of the trouble and its mechanical cure. So delighted was he with the support given him from outside the ranks of gynæcology by Clifford Allbutt, in his Goulstonian lectures [5] of 1884 on Neuroses of the Viscera, that he dedicated the third edition of his Clinical Lectures to him, and says in his preface,

"Little is to be found in these lectures on the all-pervading neurotic diseases of women; and, although the author feels himself quite unequal to the work, he may some day venture to publish a lecture on a subject which has already secured in this country the able services of Dr. Clifford Allbutt."

The portions of Allbutt's lectures [6] that concern the pelvic ailments of women are often quoted and are well worth study by all aspiring to gynæcology to-day for they still hold good and almost with equal force. It is true that Allbutt's diatribes were directed mainly against swabbing of the cervix "by little Partington mops of cotton-wool on the ends of little sticks," by which "brave and active spirits were broken down under a false belief of a secret and overmastering local malady," and against the vogue for the pessary of his day—two methods of treatment which may now be said to have receded into the background of pelvic therapeutics.

MINOR UTERINE DISPLACEMENTS.

The minor displacements are worth closer study as an outstanding example of the persistence of the mechanical attitude of mind. Since the days of Matthews Duncan these displacements, except the backward one, have largely lost favour as a factor in producing disability in women, but, in the minds of many, retroversion and retroflexion have inherited the wealth of symptoms that belonged to the others of the family before they died out, and up to within the last ten years or so there was a craze for suspension or anchoring operations exactly similar to the derided pessary-mania of the previous generation. The 'pexy takes the place of the pessary, but the mental outlook of the practitioner is the same. He is travelling along the same road as his predecessor, but in accordance with the custom of the day, by the modern surgical operation instead of the old vulcanite prop, just as he goes his rounds in a many horse-powered car instead of the pair-horse brougham.

Some ten years ago I was stimulated to discuss this question ‡ because the medical literature of the preceding period had been encumbered by records of series of hysteropexies, sometimes running into a hundred or more, that these lineal descendants of the pessary-users felt constrained to make public and because variants in the methods of hanging the uterus up by its round ligaments had appeared with the same frequency that new pessary models had done in their time. I will now take the opportunity of giving some particular reasons to explain the difficulty in forming a just estimate of these displacements as a cause of disability, and state my own view of their importance in this respect.

The gynæcologist labours under a handicap in checking his perspective of minor deviations from the mean in physical signs, because pelvic examinations are made only when there are symptoms suggestive of disorder in the reproductive apparatus. He has no basis of experience comparable with that obtained by the general physican in the examination of average samples of the population for insurance or admission to a pensionable service, and this lack of the opportunity of forming a just estimate of many anatomical variations that may occur in women with pelvic symptoms, or symptoms thought to be pelvic in origin, will largely explain the persistence of the mechanical factor as a cause of disability. The reason why the backward position has remained firmly embedded after the others have been dislodged is that it is associated with the earlier degrees of prolapse and is frequently present in chronic pelvic infective

‡ Brit. Med. Jour., 1922, i., 587.

conditions, so that symptoms are ascribed to the uterine position rather than the associated condition.

That the backward position per se cannot produce the many and varied symptoms, local and general, that have been ascribed to it is now generally accepted, but there are still far too many unjustifiable operations being performed, because other factors are ignored and it becomes necessary to state shortly how far regard should be paid to the backward position alone. It is physiologically a less favourable position and may cause interference with function. There is no evidence that it affects the menstrual function, for the vast majority of dysmenorrhœics have the normal anteflexed and anteverted virginal uterus, and there is no proof that the occasional cases with the opposite condition represent more than the average incidence of the backward position in women generally. In the production of menorrhagia retroversion is now so completely discounted that no discussion on this point is required. But that it may lessen the chances of conception is proved by occasional cases in which insufflation tests have shown that the uterine tubes are impermeable with the uterus in the backward position but permeability is restored by anteverting the uterus.

The forward and raised position of the os externum may render more difficult the entry of spermatozoa from the posterior fornix, and the less advantageous position is also shown by the many cases in which pregnancy has immediately followed replacement for the treatment of sterility. There is some evidence, too, of increased tendency to miscarriage about the third month with retroversion and of its being a less favourable position for drainage of the discharges from the uterus, so that after labour and in infection of the uterus there are good reasons for its retention in a forward position by means of a pessary till involution is complete, or possibly by operation if more than temporary treatment is thought necessary. When retroversion is part of prolapse, an abdominal operation is not required, and the treatment is by a plastic operation on the pelvic floor. The occasional cases in which a hysteropexy is called for require careful selection, and provide no justification for the wholesale performance of this operation for backache, bearing down, and other ailments in women who fatigue readily, and the operation is still too frequently done by those who do not or cannot look beyond the uterine position as the cause of disability.

The last ten years have happily seen these operations of the 'pexy order slide gradually into the background among gynæcologists as their like in the shape of nephropexies and colopexies are gradually disappearing from general surgery. Happily for gynæcology, many of the cases of backache that once were considered suitable for hysteropexy now find their way to the orthopædic surgeon, who regards them as cases of sacro-iliac or lumbo-sacral strain, so that responsibility for their treatment is being shifted on to other shoulders. Physical exercises and general improvement of the physique have long been recognised as beneficial in these cases, and thus the change of doctor offers a more hopeful outlook to these patients.

It may seem that I have gone further into these minor displacements than their importance warrants, but I have done so for no other reason than that their story is the best illustration gynæcology offers of the persistence and influence of the materialistic cast of mind. Its extravagances seem to have increased with improvements in surgical knowledge and technique, and are now more obvious in general surgery because of the greater opportunities offered there. Thus the criticisms of our medical colleagues, particularly those engaged in psychological medicine, are directed much more to the practice of surgeons and the gynæcologist has come to be regarded as playing the minor part. In an address to the Clinical Society of Manchester not long ago [6] Dr. Robert Hutchison spoke of the mechanistic school, surgical and gynæcological, much as Allbutt had done 40 years earlier, but with a somewhat lighter hand. He entitled his paper the Chronic Abdomen in contradistinction to the Acute Abdomen in the slang of surgeons. The cases he describes are those of the Goulstonian lectures of 1884 over again, and the difference is merely that of the substitution of surgical operations for pessaries and paintings of the cervix. "The road to the chronic abdomen," he said, "is paved with operations, and one of its chief physical signs is a surface criss-crossed with scars of exploring expeditions into its interior." The question of an auto-intoxication is discussed as a possible factor in the mental state of these abdominal women, of whom a vivid clinical picture is given, that everyone practising gynæcology will recognise as a type frequently seeking his advice. Hutchison regards operations as having merely a palliative effect, lasting about two years, but, like an opiate, tending to lose its effect and requiring larger doses repeated at shortening intervals. Emphasis is laid on the frequency of visceroptosis, and as in this condition the uterus is as often backward as forward, there is opportunity for its fixation and later of the other viscera that make up the extensive ptosis, as the suggestive effect of the previous operation wears off.

Sociological Factors.

Before selecting some instances of disorder in the reproductive functions that seem best to illustrate my thesis, I will mention two sociological changes, to which I do not think those practising obstetrics and gynæcology have given the attention they deserve —namely, (1) the total change in viewpoint from which questions of sex and reproduction are regarded by the community as a whole, and (2) the increasing demand for relief from the pains of labour and the shortening of its duration by the women who engage a medical attendant.

The first of these seems to have followed the drop in the birth-rate, the peak of which was reached in the mid-seventies and began among the educated and leisured classes but slowly widened its range and rapidly gathered momentum till, in the post-war years, all classes were involved, save perhaps the lower grades of casual labour and the shiftless and improvident. The outlook of mid-Victorian parents, to whom childbearing was of the established order of things and to be accepted as such, is poles asunder from that of the prospective husband and wife of this year of grace, who decide whether there is to be any family at all and, if so, its exact size and the intervals between the arrival of each member. Childbearing and the nurture of a family conflicts with the wider outside interests of the women of to-day and many who have entered on a professional or business career, or have other reasons, are not prepared to make the sacrifice involved. The feminist revolts against the stern biological law that, without respect for the equality of the sexes, has so unfairly laid the whole burden of childbearing on her sex.

The demand for an easy labour is a natural consequence of the relief of pain for disease or injury that can be given from childhood onwards with resulting diminished capacity to bear pain in both sexes, but particularly of the type of the recurrent pains of labour, continued for hours. Both these changes in the mental attitude towards reproduction must have their repercussions on its functions, some of which are more obvious than others. For example, there is nothing more resented by the modern married couple than their contraceptive plans going awry, and the distracted woman is brought to us to remedy the failure by what is called the humanitarian induction of abortion, her mental state being regarded as an indication for intervention.§ The term

§ THE LANCET, 1927, i., 217.

"humanitarian" is also applied to the termination of labour by the forceps when no other indication is justified, and its frequent use as a qualification would appear to indicate that it now means something adopted for the immediate relief of the patient that may not be the best for her in the long run. Both these social changes have had a very marked influence on gynæcological practice, especially in their psychological effects, to which reference will later be made.

Examples of Need for Attention to the Psychic Aspect.

I will now select some disorders of the sexual and reproductive functions that seem more particularly to call for psychological as well as gynæcological investigation and treatment or in which our outlook is, in my opinion, too mechanistic.

Sex-education and the early training of the sex-instinct have been left as common ground between the psychiatrist and pædiatrist, but should, in part at any rate, concern the gynæcologist for it is a time at which it may be possible to lessen the incidence of troubles with which he may later have to deal. The gynæcologist has taken little or no responsibility for the period up to puberty save in cases of actual pelvic abnormality, chiefly developmental errors, and the lack of practical experience of what can be done at this time of life in the way of prevention has left an unfortunate hiatus in his education. With the establishment of menstruation the psychical and biochemical factors must receive chief consideration in production of disordered function.

MENSTRUAL AND KINDRED DISORDERS.

Passing over irregularities at its onset as almost wholly of metabolic origin, the much debated problem of *dysmenorrhœa* and its causation provides another excellent illustration of the ill-effects of the dominance and persistence of the mechanical mind. Less than ten years ago at one of the congresses at which foregather the choicer spirits of British gynæcology there was a discussion [19] on this subject at which the opener and several subsequent speakers discussed nothing but mechanical causes and seemed to have advanced little further than their predecessors of the era of the obstructive theories; neither the psychological nor the metabolic factors came into the picture till late in the discussion, and then only in a half-hearted way, although frequent reference was made to prevention and hygiene.

Much has still to be learnt before this disordered function in healthy young women without disease of the reproductive tract is fully explained, but it may be said that minor anatomical and developmental deviations from the mean have now been largely abandoned as an adequate explanation of its occurrence, and the matter left for decision is rather relative importance of the metabolic and psychic elements. I do not intend to advocate any particular doctrine in explanation of its causation and will not go further than to point out that a physiological and preventive bias has now been given to the management of dysmenorrhœa, but more by the teaching of women practitioners to schools or attending female employees than of the elect of gynæcology. Its incidence has been greatly lessened by educational measures including the withdrawal of all suggestion of illness, continuing with outdoor games or exercise during the flow, and generally by a sensible hygiene in which all attention to menstruation as a possible handicap is avoided.

There are other disturbances of the menstrual function in which the psychological element preponderates, of which a few may be quoted as examples. The rhythm may be upset in the patient for whom an operation has been arranged at a convenient time but the best laid plans are upset by the emotional strain of admission to a hospital or home with the nursing preparations bringing on an unanticipated flow, a frequent experience of all of us. *Menorrhagia* in those living under conditions of abnormal sexual excitement is another disturbance that is wholly mental in origin, and doubtless many of this type have suffered from needless curettings. *Amenorrhœa* accompanying nervous breakdown or mental disease is well known, and so are the cases arising from the fear of or strong desire for pregnancy, and from emotional shocks of one kind or another. I recently saw a woman of 29, previously absolutely regular, whose periods suddenly ceased from the time of hearing of the death from an accident of the man to whom she was engaged; though she was physically well 18 months later, menstruation had not returned.

Of the various types of case met with in gynæcological practice in which the psychic element is evident, I would place in the forefront those in which the complaint of the woman is of trouble of some kind, difficulty or pain, in sexual relations. In my experience *dyspareunia* and *vaginismus* are rarely accompanied by the vulval or other local conditions described in the books or taught to students. In the great majority of cases in which difficulty has been present from the start of married life, it arises from the protective contraction of the constrictor vaginæ and levator ani muscles either from ignorance or dread of what the sexual act involves. If intercourse has become painful or difficult after being previously normal, there is more often marital unhappiness or other reason for defence against intercourse or against the pregnancy it may bring than any discoverable physical cause. In the majority of such cases the treatment is not gynæcological but psychological, and of husband as well as wife, in accordance with the circumstances of the particular case. Even when the trouble dates from marriage and such gynæcological measures as dilatation of the vagina and the subsequent use of dilators is employed, a frank discussion with both partners is usually necessary and possibly does much to complete the cure when the mechanical and suggestion effect of the operation is insufficient. In difficult cases combined treatment by gynæcologist and psychiatrist is most likely to be successful.

VOMITING OF PREGNANCY.

When once the reproductive function has begun there are many conditions that exhibit symptoms that may be psychic in their origin, and the one that at once comes to mind is that of the vomiting of pregnancy. Here is a disorder that was always difficult to treat and for which many remedies were suggested and had a vogue for a time, but little success was attained till the mental factor was recognised as predominant in a large proportion of the cases arising early in pregnancy.

The change of perspective was due partly to the large number of cases in which removal from home and relatives by admission to hospital sufficed for the cure of all but the more advanced and neglected cases, and partly to a paper [8] by Dr. Hurst in which the psychological factor in these cases was stressed and described as hysterical and arising from the suggestion to vomit. In this respect the description of hyperemesis in the text-books to-day offers a strong contrast with that of ten years ago. The old reflex form

thought to be excited by retroversion and many other fanciful pelvic conditions and derided by Matthews Duncan, is dead and buried, and now the problem is narrowed down to distinguishing the rarer toxic from the commoner hysterical type. The usual plan in the management of such cases is to treat them in the first instance as hysterical if there is no evidence of toxæmia, by an elementary kind of psychotherapy, chiefly isolation and disciplinary management, in which persuasion and the removal of all suggestion to vomit plays the leading part. The vast majority of such cases are cured and cured quickly if treatment is begun early and carried out confidently and thoroughly. Failure to attain success is rare enough to prove the predominance of the psychic factor and suggests either that there is a toxic element in the case or that the condition has continued too long to risk further treatment on these lines.

MANAGEMENT OF LABOUR.

The preventive prematernity service has had the great advantage of bringing the obstetrician into closer contact with general medicine and of arousing in the physician some interest in the reproductive function, and thus bringing him nearer to his great exemplar, William Harvey. The number of joint discussions that have recently taken place in London regarding the management of various diseases complicating pregnancy are an instance of this closer association. But the preventive trend of mind developed in antenatal work has not permeated to the same extent the management of labour. The outstanding problem in midwifery at this moment is still how can normal parturition be secured? We have little definite knowledge of the factors that determine good uterine action or those that inhibit it. His antenatal investigations do not enable the obstetrician to predict with confidence that a well-built woman without abnormality in the presentation will succeed in delivering herself naturally. He has no means of judging how the uterine powers will act, and too little is known of the reasons of their inefficiency. Here again mechanistic teaching has been overdone. There has been too great concentration on mechanical hindrances to parturition and text-books are still filled with out-of-date information on forms of pelvic deformities, mostly rare, to the neglect of the every-day uterine inefficiency and its causation. Advance in this direction has been delayed by those practising midwifery having in the obstetric forceps a ready means of completing labour, and they have been content with the failure to secure natural parturition, provided an easy instrumental delivery will suffice. Among the various factors that make up the sum total of the causes of uterine inertia, there is no doubt that the psychological element and fatigue play an important part. Fatigue of the mother is the commonest indication for an artificial termination, and may be exhibited by emotional outbursts and restlessness, loss of self-control, with difficulty in managing the patient. Even before this stage is reached natural delivery is unlikely unless rest can be secured. The mental state unfavourable to natural delivery is lack of confidence in her own power and ability to see the labour through without assistance. It means that unless progress is rapid and some relief is obtained, the woman soon loses heart and expects her medical attendant to complete the delivery. The importance of the mental state is shown by the much larger proportion of natural births among women who engage a midwife than among those who engage a medical practitioner. The maternal mortality-rate is lower in the poverty-stricken and badly housed areas of all our large towns and higher in the well-to-do residential areas of which many examples may be found in the interim report of the Departmental Committee on Maternal Mortality.

To take an instance, the medical officer of health for the City of Leeds gives these comparative figures from a good residential area and a working-class ward in the city for the years 1920–1929.

	Maternal mortality.	Birth-rate.
Residential ward	5·93	17·1
Working-class ward	3·01	26·0
Rate for the city	4·49	18·51

For this apparent anomaly many explanations have been offered, but there is no need to look further than the women themselves and their attitude of mind, especially in view of the sociological points I have already mentioned. Those of the midwife-employing class expect to deliver themselves, as is the local custom, and that medical aid will be required only for unexpected and unlikely happenings. The woman who engages a doctor is an entirely different proposition, as she often does so in the expectation that if things do not move quickly the artificial aid that is at hand will be immediately available.

Those of us who have served on the staff of maternity hospitals must often be struck by the much greater proportion of natural births in hospital patients than obtains in our private practice. The often-quoted differences in mortality-rates between midwife practices in hospital districts and the general rate for the country or well-to-do areas is to my mind to be explained more by the characteristics of the women delivered and less by the type of professional attendance. It is my criticism ‖ of the Departmental Committee's report that it was unable to see past the attendants and material provision for childbirth, and gave too little consideration to the childbearing women themselves. But a spread of this symptom of mass-psychology regarding labour into the midwife-employing class must be anticipated and, as it spreads, so will the difference in the mortality-rates tend to disappear. With a more widespread demand for so-called humanitarian anæsthesia and humanitarian forceps, the mortality-rate will rise unless improvements in other directions are made which will compensate for it. Our object at the present moment must be to encourage and maintain, so far as we can, the midwife-employing class, and to discover how pain may be relieved and rest obtained for the woman in labour with least inhibition of natural function. Something might be done in prematernity work by inculcating confidence in their own powers among prospective mothers, quietening fears and generally studying in each patient how their outlook can be best attuned to what is before them. The psychological aspect certainly cannot be disregarded by anyone imbued with the desire to secure normal function in childbirth.

The function of *lactation* is similar in its sociological and psychological bearings. The working woman rarely fails to suckle her infant while, in a material proportion of her more leisured sisters, success may be attained only after much care in management. The unwilling mother or the one convinced of her incapacity to do her duty in this regard is almost hopeless. The highly strung nervous woman rarely makes a good nurse, indeed the management of breast feeding is almost wholly comprised in the application to practice of physiology and psychology.

‖ Proc. Roy. Soc. Med., 1931, xxiv., Sect. Obst. Gyn., p. 24.

LATER SEQUELS OF CHILDBEARING.

Many of the ailing women complain that they have never been the same since the baby was born—usually one only. This type of patient will be seen more frequently, if the routine postnatal examination of childbearing women becomes general, as is proposed for insured patients in the various schemes for a maternity service. In such cases experience and judgment are needed to form a correct perspective, for overdoctoring may readily produce more disability than former casual methods failed to prevent. The women usually complain of backache and bearing-down, of being always tired and never fit for anything. Many of them will show little to explain their disability beyond slight cervical or perineal laceration or perhaps retroversion without obvious prolapse. The physical signs are insufficient to explain the degree of disability or the general symptoms from which she suffers and there is usually a mental, as well as, or without, a pelvic element. The problem is clearly that of determining on which of these two the chief onus falls, and my own experience is that most of them require psychological rather than gynæcological treatment. In many of them defence against another pregnancy is the cause and I say this because so many express themselves as certain that further childbearing will kill them and assert that their doctor has concurred with their view. Also in the event of another pregnancy occurring their mental condition is aggravated, and they seek our aid in order to have abortion induced because their symptoms have greatly increased in severity.

Finally there is that large and heterogeneous group of the abdominal or abdomino-pelvic type of which Prof. Bramwell says:[9] "Chronic invalidism might often be prevented if these cases were recognised in their early stages and . . . . saved from the machinations of a materialistic surgeon, who ignores the mental side of the picture." We are asked to see them by our colleagues, they are sent by their family practitioner, or come on their own initiative either because they have already been treated for what they call womb trouble or are certain some part of their reproductive apparatus is at fault. No gross pelvic disease is discovered, though many minor conditions may be present that are constantly seen without symptoms or disability such as a torn cervix, laxity of the abdominal walls, and vulval outlet or general enteroptosis. Various medical names are offered as having been given to their bodily infirmity, and they are evidently pleased to have something with a local habitation and a name to explain their incapacity. If the mental aspect, the personality of the woman and her circumstances are ignored, and some one or other of those minor injuries is singled out for treatment, another picture, like those painted by Allbutt, Hutchison, and others, is exhibited and an invalid is manufactured.

I dare not trespass on the territory of the psychiatrist and discuss the mental origin of their disability. It is easy to appreciate how mental states may arise when sexual or maternal instincts are suppressed or cannot be satisfied without conflict with the herd instinct, and thereby symptoms arise that are directed to the pelvic organs. Also that these symptoms may be confirmed by over-treatment or other forms of suggestion, but I ascribe a more prominent place to fatigue than the psychologists, though possibly I ought to regard it as the consequence of some anxiety state. I have seen many instances of the selfless woman or mother that appears to have worn herself out for others. The psychotherapy required, save in special cases, is, however, of that simple form administered almost daily by the family practitioner and, if he has the confidence of his patients and knows their "constitutions," he is favourably placed to get the best out of them. He may, however, ask the gynæcologist if there is a pelvic element that may serve as a peg on which the woman can hang her disability and is such as to call for treatment. It is in the solution of such problems that the need for greater weight on the medical and psychological aspects of gynæcology is shown.

Conclusion.

I am interested to note that in this lecture I have followed a line taken up in the Harveian Oration delivered in this College only a fortnight ago. The terms I have used are not those of the Harveian orator, but I, in another way, have been pleading for the stronger infusion into gynæcology of what he describes as "neo-Hippocratism," and the restoration of the idea of constitutions, and for the same individualistic study of the patient that he has advocated.

In spite of increased knowledge of morbid anatomy and skill in the craft of surgery, the work of the gynæcologist will still be open to criticism if the personal factors in all his patients are not taken fully into account.

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THE SURGERY OF THE DIFFUSE SPLENOMEGALIES.*

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II.

Diseases Due to the Splenic Action upon Abnormal Cells.

In the last group the destructive effect of the spleen is directed towards corpuscles which are apparently normal. There is, however, an extremely interesting group of diseases in which the spleen is exercising its apparently normal function of destroying cells which are, for some acquired or congenital reason, below standard, and since it is incapable of appreciating the fact that such cells may be sufficient for the patient's requirements, this normal function becomes a serious menace to the patient's life. These diseases are pernicious or primary anæmia, acholuric or familial jaundice, and thrombocytopenic purpura.

PERNICIOUS ANÆMIA.

The profound anæmia and the presence of large quantities of iron pigment within the tissues makes it evident that the primary anæmias are associated with excessive destruction of red blood corpuscles. The presence of an enlarged spleen, which is found on microscopic examination to contain large quantities of pigment and destroyed red cells, led to the belief that the seat of destruction was within this organ and raised hopes that a cure might be brought about by splenectomy. It was soon found, however, that

* An address delivered before the Windsor Medical Society. Part I. appeared last week.

the operation was not satisfactory. Not only was the operative mortality high, but the hope of complete cure was poor. It was soon realised that constant changes were found in the red marrow of the long bones, but it was at first believed that these were compensatory to the prolonged destruction and that if the marrow failed under the severe stress there was a rapidly fatal aplastic anæmia; if, however, it reacted, a large number of immature red corpuscles were thrown into the circulation, thus giving rise to the characteristic blood picture. Fascinating though this belief was, there was the difficulty that the characteristic clinical picture of the profound anæmia, the lemon-coloured skin, the greater frequency of the disease in males, the achlorhydria, and the gastro-intestinal and nervous symptoms, nearly always—if not indeed always—arose as a primary condition, and an anæmia of the secondary type due to repeated hæmorrhages—although perhaps very resistant to treatment and associated with anisocytosis, poikilocytosis, and even polychromatophilia—did not pass into an anæmia of the primary type. Both in the aplastic and pernicious anæmias the spleen is as a rule only moderately enlarged. The capsule is smooth and not thickened, infarcts may be present, the pulp is relatively firm and pale, the Malpighian bodies are visible but not enlarged, and the vessels are normal. There are in fact none of the characters which may be found with either Banti's disease or acholuric jaundice.

Recent knowledge makes it almost certain that in pernicious anæmia some gastric ferment is absent. The ferment is concerned with the digestion of protein, but is probably not pepsin, although its absence appears to be always associated with achlorhydria. The product of the action of this ferment upon protein, which is stored within the liver, appears to be necessary for the full development of the megaloblasts and, if it is absent, these cells are unable to develop and therefore proliferate. Being immature cells they are destroyed by the spleen. In cases of pernicious anæmia the administration either of the ferment in the form of raw hog's stomach or of the prepared product in the form of liver, in which it is stored, allows the megaloblast to develop and causes a rapid improvement in the symptoms. So beneficial are the results of this form of treatment that splenectomy to-day is hardly ever considered. It would, however, appear probable that occasionally cases might be seen in which the destructive effect of the spleen had become so established that the administration of this substance would be insufficient unless accompanied by splenectomy. Such a condition appeared to be present in the following case :—

A female patient of my own, aged 58, had for 17 years suffered with attacks of indigestion consisting of pain coming on one to one and a half hours after food, and relieved by vomiting. Five years before she had been diagnosed as gastric ulcer. At operation an ulcer was said to have been found on the posterior wall of the stomach. It was cauterised and invaginated, but no short-circuit was performed. For nine months she had noticed that she was rapidly getting weak. She had had dyspnœa, œdema of the legs, and loss of appetite. Her friends had told her that she looked a yellow colour. For some weeks she had had difficulty in walking and her legs had tended to drag.

On examination her skin was found to be lemon-coloured, her tongue was glazed, nothing could be felt within the abdomen, the X ray of the stomach was negative, but the test-meal showed free acid 0·05 per cent., and a total acid 26. Her blood examination showed 1,200,000 red blood corpuscles, hæmoglobin 22 per cent., colour-index 0·91, leucocytes 3720, severe poikilocytosis and anisocytosis, and four normoblasts for every 200 white cells. Under medical treatment she made little or no improvement. The colour-index on one occasion rose to 1·05. At the end of three months the red corpuscles were 1,800,000, but there were still four normoblasts, and also one megaloblast in every 200 white cells. One month later the normoblasts had risen to 106 in every 200 white cells.

At operation no abnormality of the stomach was found, but the spleen was distinctly enlarged and was removed. She made good progress after operation and was given ventriculin and liver extract. In February of this year—i.e., eight months after operation—her red blood corpuscles were over 3,000,000, the colour-index had sunk to 0·37, the white corpuscles had risen to 11,000, and, although there were still anisocytosis and poikilocytosis, there were only two normoblasts in 200 white cells and no megaloblasts. Clinically her condition had much improved.

Not only is this patient exceptional in presenting hydrochloric acid in her gastric juice, which would prevent some authorities from accepting her as a true case of pernicious anæmia, but also, in spite of her splenectomy and treatment with liver and gastric extract, she is by no means cured, although she is so greatly relieved that she is able to live a useful life, while before the splenectomy the disease was rapidly progressing. Whether there will be a definite indication for splenectomy as an accessory form of treatment with the administration of liver and stomach extract it is too early yet to say, but as a sole means of treatment there can be no doubt that it has failed. Hitzrot [10] carefully investigated this form of treatment and, although he only used it when the spleen was enlarged and thus was probably exercising its power of destruction, and when the blood-platelets and vital-staining cells were present in relatively large numbers, thus indicating an active marrow, yet even with such careful selection the results were not satisfactory. Giffen [9] reported a series of 62 operations in which, by most careful attention to the details of technique, the mortality was reduced to four, but only three of these cases survived after several years. He concluded that the operation was only justifiable in an occasional case. In addition to the patient reported above, I have operated on two cases, one of whom died in the post-operative period, while the other was admitted to an asylum two years after operation, and three years later died of valvular cardiac disease.

ACHOLURIC JAUNDICE.

One of the most interesting conditions in which the primary fault appears to lie with the red corpuscles is that of acholuric jaundice. In this disease there is an increased fragility of the corpuscles with a secondary anæmia, an increase of bile-pigment in the blood and, sooner or later, the formation of gall-stones which are generally of the pure biliverdin calcium type. The clinical manifestations are attacks of jaundice, which may be mild or severe, and are at first unaccompanied by the presence of colic or of white stools. Later, probably owing to the formation of calculi, typical colic and obstructive jaundice occur. Hence, if a patient has a history of repeated attacks of jaundice which are not associated with colic, this disease should always be considered. In the more severe cases the attacks may be accompanied by pyrexia and a feeling of general malaise, during which the liver and spleen are enlarged and palpable, the latter sometimes being painful. In the intervals the size of the spleen is less. When stones are present the attacks are indistinguishable from those due to other varieties of calculi. In long-standing cases hæmorrhages may occur, and Gibson lays stress upon the interesting fact that in some cases the earlier stages cannot be distinguished from splenic anæmia. Lord Dawson has also called attention to the manner in which these two diseases may clinically overlap, so that it is often extremely difficult to define the boundary between them.

One of the most interesting points of this disease is that, as Minkowski and Hayem described, there appear to be both congenital and acquired types. In my own group of four cases there was only one in which no family history could be obtained. It is generally stated, however, that the acquired examples may in turn become familial, and this appeared to be the case in one of my patients. His grandparents, parents, and brothers were all well, but his daughter, her daughter, and the son of one of his two sons were affected. With so fundamental a difference, the constancy of the fragility of the red blood corpuscles becomes of basic importance, for it is difficult to see how such a fault could be acquired; although, according to Gibson,[8] it may occur with syphilitic jaundice or with the hæmolytic jaundice of pneumonia. It is generally believed that this abnormal fragility is the primary factor, but this has not been the experience of all observers. Giffen states that in his series a normal fragility was found in occasional mild cases, a view with which Poynton [18] agrees. In my own series the fragility was increased in all four cases. There also appears to be some uncertainty as to what happens to the fragility after the patient has been clinically cured by splenectomy. The general belief is that it persists but, as the corpuscles are not being destroyed by the spleen, the patient is able to live an apparently normal life. In two of my own cases it persisted for three years, and in another case, observed five years after operation by another surgeon, it was still present. Thursfield, however, states that he has had three cases, which were followed for many years, in which the fragility disappeared, although it persisted for some months after operation.

The general characters of the spleen in these cases are very similar, but there is a great variation in the size. This probably corresponds to the clinical fact that during the exacerbations the spleen may be greatly increased, indicating an increased activity which has given rise to the increased jaundice. Specimens in the London Hospital museum vary in size from about 4 in. to 10 in. in the greatest diameter. As a general rule the capsule is smooth and not thickened, and shows few if any adhesions; so that in this disease splenectomy is a fairly simple procedure. The cut surface is dark red in colour and apppears to be filled with blood. Usually the pulp is firm, but in some, and generally the larger, it appears to be granular and softer. The Malpighian bodies are evident but not generally enlarged. The trabeculæ are often well marked; old infarcts and occasionally patches of perisplenitis may be present. In the series of six cases in the London Hospital museum there were no characteristic Gandy-Gamna bodies, although Gibson believes that they occur in most cases. McNee also states that they may occur, and that he had one case in which they were very numerous, but so small as to be scarcely visible to the naked eye. The microscopic appearances are characteristic, the spleen showing a pulp which is distended with red corpuscles, while in the active stages large amounts of hæmosiderin are present in the reticulo-endothelial cells.

Whatever be the cause of the increased fragility of the red corpuscles, the evidence seems to show that this is the primary factor, and that the action of the spleen is simply that of destroying corpuscles which are not up to standard. Although there is but little evidence in favour of Gibson's view that the primary lesion is a chronic inflammation of the spleen, there is no doubt that its erythrocyte-destroying function is variable and is greatly increased during the clinical crises. If this is the correct interpretation of the nature of the disease, the results of splenectomy would be expected to be excellent, and this is indeed the case. If an operation be performed between the crises the spleen is relatively small and, being as a rule free from adhesions, can be readily removed. The amount of anæmia is not so severe as in the cases of splenic anæmia and thus, unless the patients have been allowed to progress until serious complications due to the presence of gall-stones are present, they are usually good operative risks. In Giffen's 81 cases the mortality was only 4·93 per cent. In my own small series of four cases all made a good operative recovery. The end-results are also extremely good. The jaundice rapidly disappears, and the patient is soon restored to normal health. In 68 of Giffen's series the patients were living, one for 15 years and 13 for more than nine years after the operation. Two of my own cases are alive and well five and three years after operation. To obtain satisfactory results it is essential that the gall-bladder be always examined, and if it contains stones I am of the firm opinion that it should be removed, for although it is probable that the stones are all of metabolic origin, yet there is no doubt that they rapidly lead to a cholecystitis. The converse is also true, that in all cases of pure biliverdin stones, and especially of recurrent stones of this nature, whether in the gall-bladder or in the ducts, the possibility of acholuric jaundice should always be considered. Although this experience is that of most surgeons, Gibson quotes a case of Whipham's where jaundice and anæmia returned three months after the operation and the patient died.

THROMBOCYTOPENIC PURPURA.

The destructive function of the spleen upon cells other than the red corpuscles is seen in cases of thrombocytopenic purpura. Only a few years ago little was known of the ætiology of purpura, and the different varieties were classified purely on the clinical symptoms. A group was described where the loss of blood was only a symptom of some toxic or infective condition, and a second group where the disease apparently arose de novo. Of the latter group, simple purpura, Werlhof's purpura, arthritic or Schönlein's purpura, Henoch's purpura, and febrile purpura were described. There is no doubt, however, that many of these clinical types were only varieties of the same disease, and a case that commences as a purpura simplex may rapidly pass on to severe loss of blood from the gums, stomach and intestinal canal, kidneys, or uterus. Many of the cases also have a definite pyrexial period in the early stages. It is still recognised that purpura may occur as a symptom in any form of severe toxæmia, but of the other varieties the most important type is that known to-day as thrombocytopenic purpura hæmorrhagica. As Sutherland and Bruce Williamson [22] have shown, this is more commonly a disease of early life, but may occur at any age, and is more frequent in women. In the six cases in my own series, three were males and three females, the average age being 39. There is no family history. In most of the cases the onset is with a feeling of general malaise and a mild pyrexia of 100–101° F. A petechial rash is then noticed, and within a short time a severe hæmorrhage occurs from the nose, gums, gastro-intestinal or renal tracts, or uterus. The patient rapidly becomes anæmic, and the disease may soon progress to a fatal issue, sometimes with severe added sepsis. In others, and especially in the younger patients, an

apparently complete recovery may take place, and relapses then occur.

These chronic relapsing cases, if in boys, are very likely to be mistaken for hæmophilia, and the diagnosis may then rest entirely upon the blood characters, which are very definite. They consist of (*a*) a low platelet count, (*b*) a prolonged bleeding time, (*c*) a failure of the blood clot to retract, (*d*) a normal clotting time, and (*e*) the appearance of petechiæ below a tourniquet. In hæmophilia, on the other hand, the platelet count is normal, and the clotting time is greatly prolonged. Although a low platelet count is of great importance in the differential diagnosis, Rosenthal [21] and Howel Evans [11] have shown that a similar change may occur with other splenomegalies. They described a condition of thrombocytopenia in which the platelets are low, falling from the normal 200,000 or 300,000 often as low as 4000, and one of thrombocythæmia in which the numbers are normal or above normal. The importance of their work lies in the fact that after splenectomy the number of platelets always rises so that a thrombocytopenic purpura will probably be cured by the operation. If, however, the platelets be already high, the splenectomy may be followed by widespread thrombosis, thus possibly accounting for the belief that the changes in splenic anæmia are due to a primary thrombosis.

The condition of the spleen varies considerably. This has been noted clinically. In the acute stages and the more severe varieties it is often but little enlarged. As the disease progresses or becomes more chronic, the spleen becomes palpable and may even be considerably enlarged, although it never reaches the enormous size seen with the splenic anæmias and the leukæmias. At post-mortem, or after removal, a similar variation is seen. In the acute and fatal cases the organ is not as a rule greatly enlarged. The capsule is not thickened, and is smooth and free from adhesions; it is often somewhat wrinkled and not tense, as in some of the larger varieties of spleen. Even in the more chronic cases the organ is often only moderately enlarged, and the capsule is rarely tense. On section the pulp is relatively pale, but not granular unless there has been much concomitant sepsis, in which case it may be almost diffluent. The Malpighian corpuscles are visible but are not enlarged, and the trabeculæ are not thickened. In the four specimens in the London Hospital museum no Gandy-Gamna bodies are to be seen.

Although the diminution in the platelet count is an important feature in the disease, it does not appear to be the primary cause of the hæmorrhage, for Bedson [2] has been able to produce a serum which will entirely destroy the platelets without giving rise to hæmorrhage. Tidy [25] has carefully considered and discussed the nature of the changes, and has come to the conclusion that the underlying factor is an abnormal permeability of the capillary wall. This allows of recurrent hæmorrhages, so that the platelets are reduced in number, thus increasing the tendency to hæmorrhage. Immature platelets are then produced by the bone-marrow and, being below standard, are destroyed by the spleen, so that a vicious circle is produced. It is, however, difficult to explain how an increased permeability of the capillary wall could be acquired, and it seems certain that the disease is not congenital, for the symptoms often do not appear until middle life. The frequency of pyrexia, especially in the early stages, the tendency for wounds to become septic, and often the onset of severe sepsis elsewhere, would lead one to believe that the primary condition is an infection which may cause a decreased activity of the bone-marrow or a primary destruction of the platelets. This would explain the fact that in the early stages, when the spleen is not chiefly at fault, a splenectomy is not likely to be successful. Later, when the infection has died down, the newly formed platelets—being still immature—are destroyed by the spleen, a stage which is clinically shown by the splenic enlargement. If a splenectomy is now performed the vicious circle may be broken and a complete and permanent cure result. Coke [4] has reported two cases where a throat infection appeared to be the certain causative factor, and in several of my own patients a septic focus seemed to originate the disease.

Tidy has laid stress upon another important point—the value of a leucocyte count, for if this be low there is evidence that the bone-marrow is becoming aplastic, while if the number of leucocytes be high it can be accepted that the marrow is functioning well. He points out that if the hæmorrhages have been severe there may be a leucopenia with a relative lymphocytosis, and thus the blood may resemble that of lymphatic leukæmia. My own experience has been in accord with this, for in the more chronic relapsing cases the number of leucocytes tends to be high. It is now generally recognised that the acute cases do not make good operative risks. Whipple [29] found that in eight cases of this nature there were seven deaths. On the other hand, many of the milder cases seem to make spontaneous recoveries, but Sutherland, who laid stress upon this fact, points out that for the relapsing cases there is no treatment other than splenectomy, and that in these cases the operation should certainly be advocated. It is my own custom, whenever possible, to wait until the temperature has fallen to normal, until the spleen is palpable, and until there is a definite decrease in the platelet count. It is, however, sometimes necessary to operate in cases of great severity where it is felt that the patient is certain to die unless an operation is performed. In these cases the risk is very considerable, but splenectomy may offer a slender chance of cure, especially if a blood transfusion follows immediately after the operation. Witts [30] has shown that in both the acute and chronic cases liver therapy is of no value. In the more chronic cases the results of operative treatment are often remarkable. The spleen is easily removed, as it is relatively small and free from adhesions; the mortality is therefore low. In Giffen's 20 cases there was no death, and of the 73 chronic cases collected by Whipple only six died. After the operation the progress is rapid, the platelet count rises almost at once, the hæmorrhage ceases rapidly, and the patient progresses to complete health. Relapses are very rare.

In all the above conditions, in which there is destruction of the normal or abnormal constituents of the blood, the clinical picture may be clear-cut and well-defined, but in others there is a tendency for the symptoms to overlap and even for one clinical syndrome to pass into another; thus one of the spleens in the London Hospital museum is from a female aged 53, who 37 years previously had been admitted as a splenic anæmia; 18 years previously she had again been an in-patient with pernicious anæmia, and had finally been admitted as a case of acholuric jaundice, showing on this occasion jaundice, an increased fragility, and a history of having one sister with an enlarged spleen and jaundice. It is also well-recognised that purpura with a diminution in the number of platelets may be found with several

forms of splenomegaly other than thrombocytopenic purpura. Especially is this so with splenic anæmia; one of my patients had the combined syndrome of splenic anæmia, platelets of only 45,000, and a bleeding time of six minutes. Her only symptom had been severe attacks of hæmatemesis; the spleen was much enlarged and of the Banti type, and at operation there was a coarse cirrhosis of the liver. Splenectomy was followed by very satisfactory results. Another of my cases, having the typical history and physical signs of a thrombocytopenic purpura, was found after death to be a case of widespread Hodgkin's disease.

Gibson [8] has described at length the close relationship between splenic anæmia and acholuric jaundice, and has shown that splenic anæmia may be associated with an increased fragility of the corpuscles, and later with jaundice. He has also reported cases where one member of the family has had splenic anæmia and another acholuric jaundice. Avery has also reported an interesting case where a polycythæmia became converted later, owing either to the aplastic condition of the marrow or the stimulation of the hæmolytic activity of the spleen, into a pernicious type of anæmia. It therefore seems probable that many of the conditions which we have been accustomed to regard as distinct diseases are rather clinical syndromes due to over-activity of one or other of the functions of the spleen and, whether the primary factor be an inflammation of the splenic tissue or some change at present ill-understood elsewhere in the body, it becomes easy to understand how only one or several of these functions may be deranged, or even how the increase of one function may follow that of another.

Errors in the Splenic Action upon Leucocytes.

Although it is believed that the Malpighian bodies of the spleen supply lymphocytes, and that leucocytes arise from the splenic pulp, it probably never happens that an excess of this function is limited to the spleen itself. Both lymphatic and splenomedullary leucocythæmias, although generally regarded as due to malignant overgrowth of the cells which have escaped into the general circulation, are apparently due to widespread changes, so that although the spleen may be one of the centres of such formation it is certainly not the only one. These conditions are not, however, always easy to recognise for, as Gibson points out, in the crises of acholuric jaundice the condition of the blood may closely resemble that of a leucocythæmia. The blood picture in acute purpura may also closely resemble that of a lymphatic leukæmia. Moreover, in some cases the error appears, for a time at any rate, to be mainly limited to the spleen, so that splenectomy is followed by a temporary improvement both in the condition of the patient and in the blood picture.

One of my patients, a male aged 41, sought advice because of increasing weakness and profound anæmia with an enlarged spleen. His spleen was enormous, and the differential white blood count showed 70 per cent. of a large mononuclear type of cell more like an endothelial cell than a large hyaline white cell. The spleen, which weighed 12 lb., was removed, and showed the pulp widely infiltrated with similar large round cells, which were regarded as mobilised histiocytes. After the splenectomy his health greatly improved, as did the blood picture. The endothelial-like cells rapidly disappeared, and five months after operation the blood picture was normal. Six months later—i.e., 11 months after operation—his symptoms and the abnormal cells in the blood gradually reappeared, and he died 18 months after operation.

Another case of mine who has been regarded as a chronic myeloid leukæmia is alive and relatively well six years after splenectomy, although her blood still shows normoblasts and myelocytes.

In either condition the operation is one of considerable danger, and is associated with a high mortality. X rays and radium have of late given much more satisfactory results, and hence an operation is usually regarded as unjustifiable. Giffen states, however, that after the use of these accessory methods of treatment splenectomy is associated with much less risk. Forty-three of the cases he analysed were operated upon with only three deaths. Of the survivors, 20 lived longer than two years, and five for more than two years. In a few cases, therefore, it may be a satisfactory measure.

Chronic Granulomatous Lesions.

In the interesting conditions of Hodgkin's disease and the so-called lymphosarcomatosis the spleen is widely affected, and suffers an apparently diffuse enlargement. This, however, is only a part of what is probably a diffuse granulomatous inflammation, and, in Hodgkin's disease especially, it is not as a rule difficult to determine that other sites of the body are affected, so that even in the so-called abdominal type not only are the mesenteric and lumbar glands involved in the lesion, but other more easily examined glands may also be diseased. There is no reason to believe that removal of the enlarged spleen would help in any way towards an abatement of the general change. In the so-called lymphosarcomatosis, which is also probably a chronic inflammatory lesion rather than a neoplastic condition, the difficulties are greater in that the main change may be in the spleen, so that it may be impossible to determine the presence of enlarged glands until the abdomen is opened.

In one of my series of three this was the case. The condition was regarded as splenic anæmia, but at operation a grave prognosis was given, as a few enlarged glands were found within the abdomen. After removal the spleen showed on section a large number of ill-defined spherical white areas which were apparently greatly enlarged Malpighian bodies, thus suggesting lymphosarcomatosis, a view which was confirmed on microscopic examination. She died seven months later of what was supposed to be a pneumonia, but what was probably a spread of the disease.

Of the other two cases, one died in the post-operative period and the other of general lymphosarcomatosis nine months later.

In all cases, therefore, in which a splenomegaly is associated with a general lymphatic enlargement, the prognosis must be regarded as grave, and a splenectomy as unlikely to be of any value.

Metabolic Changes in the Spleen.

The remaining conditions of surgical interest in which a diffuse enlargement of the spleen occurs are now known to be only part of a general metabolic change. They are all rare, and consist of three somewhat closely allied conditions known as Gaucher's disease, Niemann-Pick disease, and hypercholesterinæmia. The characteristic change in the first two consists in the presence of large, round, vacuolated cells in the spleen, bone-marrow, and glands, the condition being originally believed by Gaucher to be a primary endothelioma of the spleen. Although these two conditions may so closely approximate to one another that a differential diagnosis is impossible, yet in well-marked examples there are clear points of distinction. Gaucher's disease is a congenital and familial condition which may appear early in life or may not show itself until relatively late, while the Niemann-Pick syndrome, being generally fatal, appears only in one generation and usually occurs in young infants of about six months. Both conditions are more common in females and in Hebrews. Gaucher's disease is characterised by a progressive enlargement of both liver and spleen, and especially

of the latter. There is bronzing of the skin and often an anæmia of the secondary type. Most commonly there is a characteristic wedge-shaped thickening of the conjunctivæ but, as Welt, Rosenthal, and Oppenheimer [28] have shown, this is not constant. With the anæmia there may be a thrombocytopenia which is then associated with hæmorrhages. The bones are often painful and tender owing to absorption. The disease tends to run a chronic course.

The Niemann-Pick disease shows a similar enlargement of the spleen and a bronzing of the skin. There is a cherry-spot in the macula. The blood changes may be similar, but there is a more rapid progress with an increasing cachexia leading to death. There is an excess of blood-cholesterol and a constant lipæmia, and after death an excess of cholesterin in the organs. In Gaucher's disease characteristic cells are found in the liver, spleen, bone-marrow, and lymph glands, and in the Niemann-Pick disease these are also seen in most of the other organs, including the brain, cord, vessels, kidneys, adrenals, and intestine. The changes in the cells, as Mandelbaum and Downey [15] have shown, are metabolic in origin. In Gaucher's disease the substance in the cells is believed to be formed of kerosin, while in the Niemann-Pick disease it is probably cholesterol.

There is a rare but interesting condition which is somewhat closely allied to the above. Only one such case occurred in my series of 42 cases. This has been fully reported by Brain and Byrom.[3] It was characterised by deep jaundice and pigmentation, and by the presence of confluent xanthomatous patches on the face, neck, breasts, arms, and palms. The liver and spleen were enlarged, and the blood-cholesterol was greatly increased. The liver at operation was enlarged but smooth, the spleen was considerably enlarged, and on section the Malpighian bodies were conspicuous but not greatly enlarged. No recent or old hæmorrhages could be found. The chief microscopic change was a remarkable degeneration of the walls of the arterioles and arterial capillaries, and although the reticular cells showed an abundant, ill-developed vesiculated cytoplasm, the characteristic cells of Gaucher's disease were absent. Parkes-Weber, in the discussion following this report, states that he regarded the condition as a primary metabolic abnormality causing the hypercholesterinæmia, which in turn led to xanthomatosis of the biliary ducts, and so caused jaundice.

Since in this group the changes in the spleen are only part of a general metabolic error, it is manifest that splenectomy cannot produce a cure. In the Niemann-Pick disease the early age of the patients and the rapid course of the disease prevents this procedure being of any palliative value, but with the more chronic progress of Gaucher's disease operation may overcome the thrombocytopenia and thus relieve the tendency to hæmorrhage. It may also give great relief from the pain and discomfort due to the enlarged spleen. It should clearly be reserved for cases where the general health of the patient is still fair. In such, Cushing and Stout found a mortality of six in 29 cases. Of the 23 survivors, the results were favourable in 16, but none of these had lived for ten years. Hunter and Evans have reported the one authentic case occurring in the London Hospital. This patient was alive and well 13 years after a splenectomy performed by Sherren. She still showed the characteristic bronzing of the skin, the conjunctival thickenings, and the enlargement of the liver, but she was free from pain and discomfort.

It is manifest that in these diffuse enlargements the spleen may play a very varying part. That its functions are at present so ill-understood gives a peculiar fascination to the study of its diseases; already the fact is emerging that similar functions may be stimulated or retarded by many different lesions, but in the greater part these changes are inimical, and splenectomy therefore affords a hope of cure in many cases which but a few years ago would have been regarded as hopeless, and the patients left to a lingering death.

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THE ALKALINE TREATMENT OF CHRONIC NEPHRITIS.

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THE work of Osman [1] on the prophylaxis of scarlatinal nephritis and on the therapeutics of hydræmic nephritis has called attention to the part played by acids and alkalis in the functioning of the kidney, and has suggested that the use of large doses of alkalis may favourably affect the clinical course of certain types of nephritis, and may even have an influence in altogether preventing scarlatinal nephritis. Again, attention has frequently been called to the probability of a local acidosis in cases of functional albuminuria [2] and in experimental nephritis.[3] Lastly, a number of authors have supported, on more or less empirical grounds, the

custom of administering alkalis in cases of nephritis, a recommendation which was, indeed, made by Bright himself.[4]

The Questions at Issue.

The processes of metabolism on an ordinary mixed diet yield daily an excess of non-volatile acids equivalent to about 500 c.cm. of N/10 solution per day, and these acids have to be excreted by the kidneys. When the kidneys are inadequate for this task, a retention of acid tends to occur in much the same way as urea is retained in the blood when the kidneys are gravely diseased. The retained acids have, of course, to be neutralised by the body bases, and hence it is common to find that a considerable diminution in the alkali reserve of the blood occurs in cases of advanced nephritis on an ordinary diet. It is not unreasonable to suggest, therefore, that the work of the diseased kidneys may be considerably lightened by the use of diets which will not leave, on oxidation, the usual great excess of acids over bases. The acid- or base-forming properties of food depend on the inorganic constituents, or ash, remaining after the organic constituents have been oxidised in the body, and, according to the type of food eaten, this ash may be neutral, acid, or alkaline. Thus, to some extent at least, the equivalent of alkali administration can be obtained by the use of basic diets, and Sansum, Blatherwick, and Smith [5] claim to have obtained considerable clinical improvement in 90 per cent. of their arterial hypertension-nephritic group of patients by the use of such diets.

We have recently shown [6] that diets of a highly basic character are better tolerated by the advanced chronic interstitial nephritic than diets of an acid-producing character, which tend to exacerbate the condition. On a highly basic diet the clinical condition of the patient tends to show some improvement, and the alkali reserve of the blood, as measured by its carbon dioxide combining power, is invariably increased (provided, of course, it has not previously been artificially raised by the administration of alkalis). Coincidentally with this increase in the alkali reserve, the acidity of the urine is diminished, and the non-protein nitrogen of the blood is decreased. We suggested [6] that these phenomena had nothing to do with the amount of protein ingested, since the protein intake in both the high base and the high acid diet was kept identical in our experiments. Only the kind, and not the amount, of protein was varied. This suggestion, however, is subject to the criticism that the nature of the protein may itself be important. The protein of the basic diet, derived as it is largely from vegetables, may be less completely absorbed than the animal protein of the acidic diet. In other words, the effect produced by the basic diet in lowering the blood non-protein nitrogen may be simply due to the patient taking the equivalent of a low protein diet. Again, it has to be remembered that the proteins contained in the basic diet differ from those contained in the acid diet in the amino-acids composing them. It is therefore possible that the beneficial effects of the high base diet and the deleterious effects of the high acid diets may be due to the nature of the amino-acids supplied in the different types of protein, and not to the actual acidity or basicity of the diet used.

These questions are of considerable clinical importance. If it is the particular type of protein which is of importance in determining whether or not further renal damage results, it becomes necessary to enforce a rigid dietetic regimen. If, on the other hand, it is simply the acidity or alkalinity of the diet which matters, then dietetic restrictions are of less importance, so long as any diet given is sufficiently "covered" by doses of alkalis.

Lastly, it appeared desirable to confirm our previous results since, owing to the laborious nature of the investigation and the difficulty in collecting suitable patients on whom to make observations, it was only possible to study a small group of cases in the course of many months. In order to investigate these points, therefore, a further series of cases have been studied, the results from which are reported here.

Method of Inquiry.

The experimental methods and details of the diets used have been fully described elsewhere.[6] Briefly, the technique was as follows:—

On admission to hospital, the patient was placed for some time on a standard low protein diet, in order that any improvement due to simple hospitalisation might be attained before the actual period of observation began. When this preliminary period was over, the blood and urine chemistry was determined, and the patient was given one or other of the experimental diets—a high acid diet containing a preponderance of meat, fish, eggs, and cereals; or a high base diet containing a preponderance of milk, vegetables, and fruit. In either case the protein, fat, and carbohydrate content of the daily ration was quantitatively the same, the protein amounting to 1·0 g. per kg. body-weight (or, in the case of children, 1·5 g. per kg. body-weight). The total calorific value of each of the diets was 2100 cals.

After a suitable dietetic period, the length of which had been determined by previous experience, and after the blood and urine chemistry had been again examined, the patient was either changed to the other diet, or the character of the existing one was entirely altered by the administration of suitable doses of alkali or acid. In this way the patient was subjected to a number of dietetic variations: a control period on a standard diet; a period on an acid diet; one on an acid diet covered with alkali; one on a basic diet, or on a basic diet plus alkalis; and sometimes one on a basic diet covered with acid. The order in which the diets were given varied, and usually the complete dietetic cycle was repeated. The blood and urine chemistry was determined before each change in the diet was made.

The question of whether the beneficial effect of alkalinity was due to a restricted absorption of protein resolved itself into an estimation of the total output of nitrogen in the urine and fæces during each dietetic period.

Results.

It may be said at once that our more recent series of observations has entirely corroborated the findings previously obtained. On alkaline treatment clinical improvement was usual, and coincidently there was also improvement in the blood non-protein nitrogen, together with an increase in the alkali reserve, and sometimes a distinct diminution in the output of urinary albumin. The cases used in these observations were necessarily advanced chronic nephritics, since only in them is the blood chemistry sufficiently altered to give fluctuations of magnitude great enough for proper demonstration. In milder cases the diets produced their beneficial or deleterious effects without any manifest alteration in the blood chemistry. A number of our cases were so far advanced as to show a somewhat increased blood creatinine; and it is significant that in these cases the blood creatinine continued to rise steadily, completely irrespective of the diet used and of alterations in the urea nitrogen and alkali reserve of the blood. We have been unable to determine whether this rise in the blood creatinine was more rapid on the high acid than on the high base diet. Our impression is, however, that even in cases on the verge of uræmia life may be definitely prolonged by alkali therapy.

ILLUSTRATIVE CASES.

Evidence that the beneficial effect of the high base diet lies in the excess of base over acid, rather than in the nature of the protein used, is best given by illustrative cases. Those we have chosen are entirely

representative, and in no way atypical of the series, which includes 17 cases.

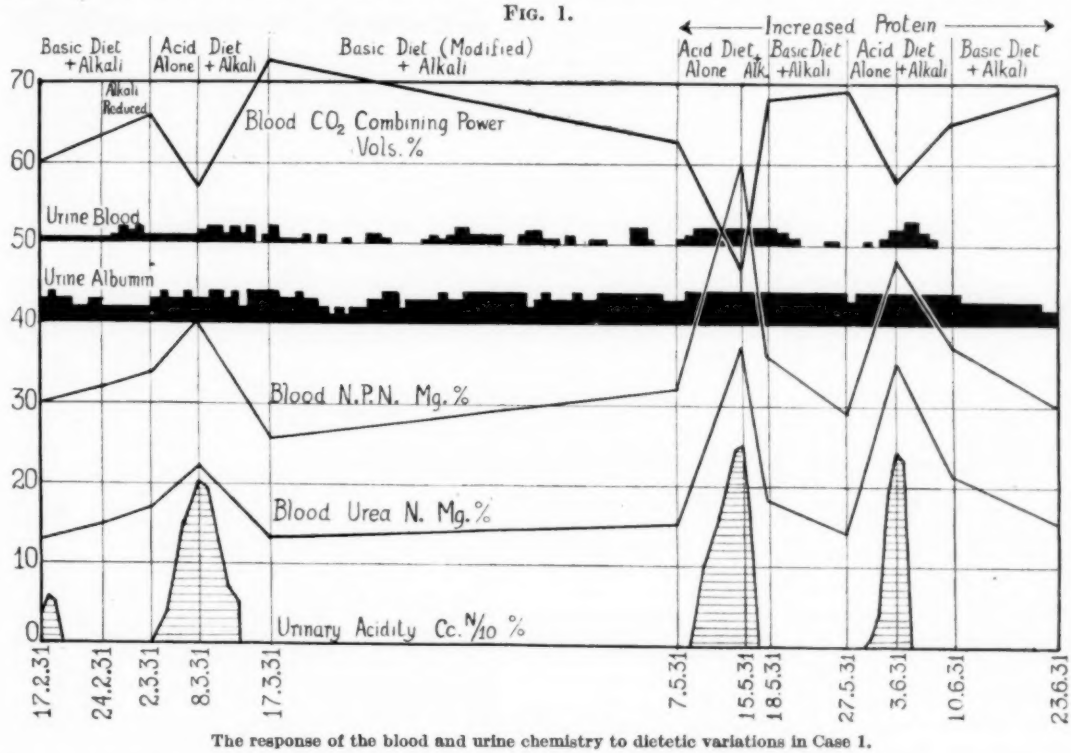
CASE 1.—A schoolboy, aged 12, had had an attack of acute nephritis one and a half years before the present admission. The acute condition had gradually passed into one of subacute parenchymatous nephritis with marked albuminuria and a few red blood corpuscles in the urine, low serum protein, and some œdema. There had been no difficulty in excreting nitrogen. He was eventually discharged on that occasion in fairly good condition, with only slight albuminuria, no œdema, and little or no blood in the urine.

Three months after his discharge he was readmitted, having caught a chill seven days previously, whereupon puffiness had reappeared in the face with some œdema of the feet, and these symptoms were accompanied by some headache and breathlessness. The urine once more contained a large amount of albumin and some microscopical blood; the red blood corpuscles were 3,200,000, with a hæmoglobin percentage of 50. The blood pressure (which had previously been steady at 110/70) was now constantly raised to 130/90, and the urea-concentration test (previously quite normal) now gave readings of 0·77 per cent. and 1·37 per cent. for the first and second hours respectively. The blood chemistry on admission did not show any variations from the normal range. It was thought, however, that the patient was passing from the stage of subacute parenchymatous nephritis to the stage of secondary contracted kidney.

The chemical results of four months' observation on this case are summarised in Fig. 1. After the preliminary control period, the patient was first given the high acid diet, which produced the usual fall in the alkali reserve and rise in the non-protein nitrogen of the blood. The addition to this diet of a sufficient amount of sodium bicarbonate and potassium citrate to give an excess of basic radicles over non-volatile inorganic acid radicles then caused a complete reversal of this tendency; the strongly acid urine became alkaline, the alkali reserve of the blood rose, and the non-protein nitrogen fell. Here it should be noted that the beneficial effect must have been due to the alkali added, since the food intake during the two periods was identical in quantity and in kind.

A six weeks' period on a high base diet supplemented by alkalis followed. During this period, although the urine remained alkaline, there was a slight fall in the alkali reserve, and a corresponding slight rise in the non-protein nitrogen of the blood. These changes in the blood chemistry, though very slow when compared with the more marked and rapid changes previously evoked, call attention to the importance of a sufficient supply of alkali. We have repeatedly found in our advanced cases of nephritis that the high base diet was of itself quite insufficient to maintain the alkali reserve of the blood, and even to prevent the excretion of an acid urine. In most cases the addition of alkali is necessary even to this diet, and the amount can only be determined for each individual.

FIG. 1.



The response of the blood and urine chemistry to dietetic variations in Case 1.

At this stage the first observation was repeated, with, however, a greater protein intake. Again the acid diet produced its usual effect on the blood chemistry, an effect which was immediately reversed by the simple addition of alkali in amount sufficient to produce an alkaline urine. The effect was identical with that previously observed, but magnified by the fact that the protein intake had been doubled. A subsequent period on a basic diet with the addition of an adequate amount of alkali gave a continued chemical improvement, and a further repetition of this cycle of dietetic changes gave identical results.

With such short dietetic periods, alterations in the urinary blood and albumin are difficult to observe. Nevertheless, in some cases there was a tendency for the blood and albumin to be decreased while the patient was on alkaline treatment, and increased while he received the uncovered acid diet. In Case 1, however, this tendency is not apparent.

There can be no doubt in this case of the deleterious clinical effect of the high acid diet. In fact, the high acid diet without added alkali had to be stopped

before the expiry of the full dietetic period owing to its harmful effect. On each occasion the patient became puffy about the face, complained of headache and nausea, and was somewhat drowsy and lethargic. Nor can there be any doubt of the beneficial effect of alkali for, on each occasion, its administration was followed by the rapid disappearance of these symptoms, even though no other change in the daily intake was made.

CASE 2.—A joiner, aged 31, five years before admission had begun to have mild polyuria, which gradually became more marked. Six months before admission he noticed that his face was sometimes slightly puffy on rising in the morning. He then noticed that he was becoming more easily tired after his work, and this feeling of exhaustion became gradually more troublesome. He also began to suffer from headaches and inability to concentrate, and noticed that his eyesight was less acute than it used to be.

His face was very slightly puffy, but there was no other œdema anywhere. Some anæmia was present; the red cells numbered 4,160,000 and the hæmoglobin percentage 74. The blood pressure was not much raised. The 24 hours' volume of urine was increased, and contained a moderate amount of albumin and casts. The separate specimens passed were of low and constant specific gravity. A urea-concentration test gave figures of 0·99 per cent. and 1·41 per cent. for the first and second hour specimens respectively. The urea nitrogen of the blood was 49 mg. per 100 c.cm., and the carbon dioxide combining power was 54 vols. per cent.

Results entirely similar to those in Case 1 were obtained from this patient, and are shown in Fig. 2. Apart from the general demonstration that the chemical situation deteriorates with the acid diet and improves on the addition of alkali, this case is interesting as showing once more that a basic diet may be quite insufficient by itself to maintain an alkaline urine and a high alkali reserve of the blood. The case also illustrates the steady increase in the blood creatinine in spite of fluctuations in the blood non-protein nitrogen as a whole, and, indeed, in spite of a *net* fall in that index.

The Questions Answered.

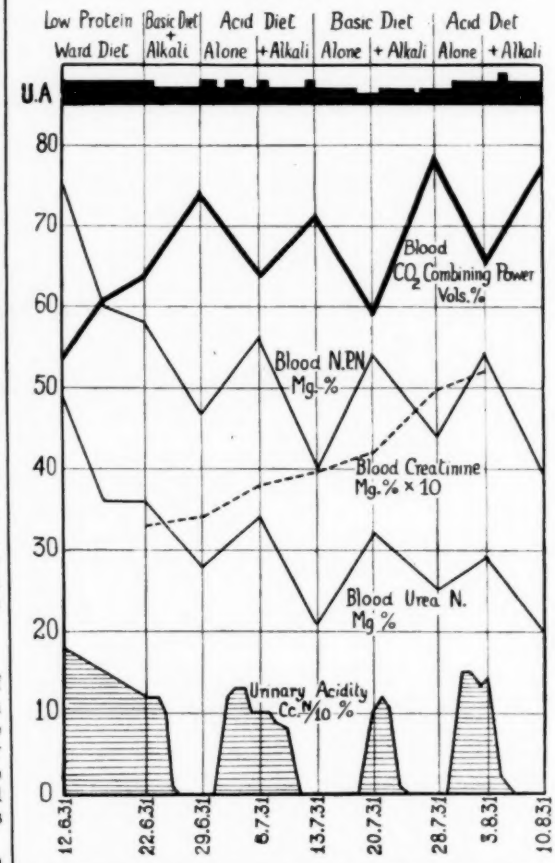
These results, supported as they are by a number of others entirely similar, fully justify the conclusion that the beneficial effects of the high base diet are due, not to the nature of the protein, but to the basicity of the diet, and that they may be reproduced by the administration of an acid diet provided it is covered by adequate doses of alkali—a precaution which is often necessary even with the high base diet itself.

The second question we have raised—whether, on an alkaline diet or on an acid diet plus alkali, less protein is absorbed than on an acid diet alone—is very simply answered. Analyses of the urine and stools demonstrate that the amount and distribution of the nitrogen excreted are the same whether the patient is receiving the one diet or the other. It is reasonable to conclude, therefore, that, however the alkali may exert its beneficial effects on the blood chemistry, it is not by altering the amount of protein absorbed, nor by decreasing the amount of protein breakdown in the body. This point is one of more than mere academic interest, for our object was not merely to lighten the load on the damaged kidney, but to give the patient an adequate diet both in total calories and in protein. This object, we believe, is shown by our experimental results to have been attained. As a minor point in this connexion it may be mentioned that the patients did not lose weight even when kept on the basic diet with added alkalis for a considerable time.

TREATMENT.

The classical treatment of chronic interstitial or azotæmic nephritis consisted in giving an exceedingly low protein diet, chiefly in the form of milk, with the total exclusion of meats. This diet, though accidentally basic in character, was deficient in nitrogen and, though it has been shown that man can subsist for very long periods on exceedingly small amounts of protein, to do so requires a very carefully balanced diet such as was not supplied by the more old-fashioned nephritic regimen. The modern procedure,

FIG. 2.



The response of the blood and urine chemistry to dietetic variations in Case 2. U.A. = urinary albumin.

recognising this deficiency in protein intake, allows a more generous amount of protein, but in doing so fails to provide the excess of basic radicles over acidic radicles of which our observations suggest the desirability. Thus both treatments are partly right and partly wrong.

Our results seem to indicate that the best method is to supply adequate proteins and at the same time to keep the urine alkaline. By this means several cases, with smaller degrees of renal damage than those considered here in detail, have definitely improved and have apparently maintained their improvement. It is possible that the lightening of the load on the kidney may have arrested the progress of the disease, and may even have allowed some regeneration of tissue to take place. On the other hand, it must be admitted that in more advanced cases the disease has not been arrested, though the clinical condition of the patient and the height of the blood-urea may have been temporarily benefited.

The practical deductions from these observations are that in chronic nephritis the urine should be kept

alkaline, and that this can best be accomplished by giving basic ash foods together with an adequate quantity of alkaline salts. The type of protein is theoretically immaterial, provided always that it is adequate, and that sufficient alkali is given. In practice, however, the highly acidic character of meat and cereals makes their adequate covering with alkali a matter of some difficulty, and it seems desirable that for this reason their inclusion in the diet should be restricted, though not necessarily abolished. The proteins should therefore be derived mainly from milk and vegetables, though it is possible to include enough meat, fish, and eggs to secure reasonable variety.

Though not of direct concern to our present thesis, it is of interest to note that our results have shown in individual cases a very real relationship between the alkali reserve of the blood and the non-protein nitrogen in nephritis. This relationship, which was also noted by Marrack,[7] is to some extent a general one, and though, when many different individuals are grouped together, the correlation is less obvious, it is none the less quite definite, as is shown in the Table below. There is thus a tendency for a low alkali reserve to be accompanied by a high non-protein nitrogen, though we must emphasise that it is only with alterations in the alkali reserve by the mechanism at work in nephritis that such a relationship exists. In other words, it is the retention of "fixed" acid which is accompanied by a retention of nitrogen.

TABLE showing the incidence of acidosis in a series of 135 observations on advanced nephritics, arranged according to the values of the blood non-protein nitrogen and the carbon dioxide combining power (alkali reserve).

Blood non-protein nitrogen mg. per 100 c.cm.	Blood CO_2 combining power in vols. per cent.				
	Over 70.	60–70.	53–60.	45–53.	Under 45.
Under 40	26	17	2	—	—
40–75	3	39	15	5	—
75–100	—	2	3	7	1
Over 100	—	—	2	3	10

Summary.

(1) A series of 17 cases of chronic nephritis has been studied, the reactions to certain types of diet and to alkalis being observed. (2) A basic type of diet is better tolerated by such patients than an acidic type. (3) The deleterious effect of an acidic diet may be counteracted by the simple administration of adequate doses of alkali. (4) In advanced cases, at any rate, it is usually necessary to supplement even a basic diet with alkaline salts in order to maintain an alkaline urine. (5) The beneficial effect of the basic diet seems to be due entirely to its alkalinity. (6) The alkalinity does not act by reducing the absorption of protein or by decreasing the rate of breakdown of the body proteins.

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RADIUM BY MOUTH OR INJECTION IN THE TREATMENT OF HIGH BLOOD PRESSURE.

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RADIUM salts can be used medicinally through the usual channels within certain wide limits of safe dosage. When given to patients with hyperpiesis a steady fall in blood pressure occurs. In laboratory animals a large dose of emanation causes a rapid fall in blood pressure even in the normal, but under clinical conditions, with the scheme of dosage adopted in the present inquiry, the fall was not noticeable in the normal, and there was a delay of one or two days in hyperpiesis before it became so appreciable as to be outside the range of expected variations. The fall continued for many days, and the lowest figures were not reached until the end of a week or more of treatment. A fall of 50 mm. in systolic blood pressure was not uncommon, but the value never became subnormal. Unlike the evanescent effects obtained with simple vasodilators, such as nitrites, the state of lowered pressure persisted throughout the 24 hours, even on one dose daily. The fall did not occasion any malaise, or, as a rule, bring fresh cardiovascular symptoms into prominence. On the contrary, the patients experienced feelings of greater well-being, and showed an all-round improvement in general condition. When the course of treatment was suspended the pressure continued at its lower value for several weeks, but often, after a time, it began to rise again slowly. In certain cases the full advantage persisted indefinitely. In other cases, it was possible to sustain the low figure by giving an exceedingly small amount of radium every week. When partial relapse occurred, a further response to radium therapy was easily secured. There was a small proportion of patients in whom the blood pressure did not respond at all.

Dosage.

Radium, like lead, is a cumulative poison, which collects in the tissues and is slowly excreted by the bowel. It is therefore important to determine not only the daily dose adequate to produce a vascular response, but the total amount which can be used over a given period without toxic symptoms. The units employed are the gramme, milligramme, and microgramme, the last being one-thousandth part of a milligramme. In measuring radon or emanation the unit is the curie—namely, that amount of emanation which is in equilibrium with 1 gramme of radium.

1 curie = 1000 millicuries.
1 millicurie = 1000 microcuries.
1 microcurie = 2500 Mache units (approx.).

Solis-Cohen and Githen[13] refer to doses of 50 microgrammes of radium bromide given intravenously and 12 microgrammes by mouth. A. E. H. Pinch mentions the injection of radium salts in 7½ microgramme doses daily up to a total of 100 microgrammes. Continental workers use more conservative amounts, up to 2 microgrammes daily, and a total of 25 microgrammes in all.

In my own series of cases I have used a daily dose varying from 0·05 microgramme to 2·00 microgrammes, and a total dosage varying from 0·80 microgramme to 9·00 microgrammes, amounts far smaller than those described as safe doses by other workers, yet quite sufficient to produce striking changes in blood pressure. My impression is that the best results are

obtained by injections of 1 or 2 microgrammes each, repeated every 24 or 48 hours, until the requisite effect has been secured, after which daily doses of 0·02 to 0·06 microgrammes by mouth for a few weeks. can the full strength solution be sealed in bottles, and even then much is lost later in the processes of pouring and drinking. Of the emanation which reaches the tissues very little remains unexcreted after four hours,

Case.	Case history (prior to radium therapy).	Pressure *before* radium.	Duration of radium therapy in days.	Total radium chloride given.	Pressure *during* radium therapy.	Fall in pressure.
		mm.		Microg.	mm. S. D.	mm. S. D.
1	Miss A, aged 21. Intestinal toxæmia. In spite of two months' bowel lavage and diet, blood pressure persisted in neighbourhood of 180 mm.	182	1 9 16	0·05 0·45 0·80	180 110 150 104 145 95	*37 15*
2	Mrs. B, aged 55. Constipation, flatulent dyspepsia. Heart much enlarged. No bruits. X ray: Aorta not dilated, but long axis of heart less erect than normal.	170	30	1·50	141	*39*
3	Mr. C, aged 65. Angina pectoris. Very large heart. No bruits. X ray: Aorta not dilated. Careful treatment by diet, paraffin, and aperients for several years prior to radium therapy.	184	24 49 135 225	1·25 2·45 2·65 2·80	150 147 145 130	*54*
4	Mrs. D, aged 35. Fibrositis and indigestion. Treated by diet, paraffin, and aperients for several years prior to radium therapy.	204	50 165 305	2·50 5·00 8·50	176 167	*37*
5	Mrs. E, aged 55. Osteo-arthritis. On diet, paraffin, aperients, and vaccines for several years, during which the following pressures were recorded:— 1926 (195 mm., 190 mm.). 1927 (180, 190). 1929 (180). 1931 (183, 180).	S. D. 180 95	4 5 6 7	3·00 5·00 7·00 9·00	165 82 156 75 149 84 148 72	*38 23*
6	Mrs. F, aged 57. Diabetes mellitus. On diet, paraffin, aperients, and sedatives pressure fell from 230 mm. to 195 mm. Later readings were:— 1926 (180, 185, 180). 1927 (180, 180, 200). 1928 (220, 210). 1929 (195, 195, 209, 210).	210	75	3·95	162	*48*
7	Mrs. G, aged 45. Migraine and intestinal toxæmia.	240	35	1·75	190	*50*
8	Mr. H, aged 67. Chronic constipation. Prostatectomy at 60, since when attacks of *B. coli*, cystitis, and pyelitis. Following observations were made during careful treatment by diet, paraffin, and aperients:— 1926 (175 mm.). 1927 (176 mm.).	180	50 75	1·25 1·80	165 158	*22*
9	Mrs. I, aged 64. Rheumatoid arthritis, controlled for five years with diet, paraffin, aperients, and vaccines prior to radium therapy.	180	23	1·15	168	*12*
10	Mr. J, aged 63. Angina pectoris. Very large heart. No bruits. X ray: Some general dilatation of aorta. After several months of diet and paraffin, pressure was 152 mm. systolic.	152	23	1·15	138	*14*

Microg. = microgrammes. S. = systolic. D. = diastolic.

Case.	After history.	mm. S.	D.
1	2½ weeks after last dose of radium	150	90
	6½ " " " " "	135	80
2	12 days " " " "	138	
	2½ months " " " "	120	
3	During the final period the dose was only 0·025 microgrammes weekly.		
4	3 weeks after completion of 5½ months period .	182	
	2 " " " 10 " " ..	175	
5	3 weeks after last dose of radium	170	86
	2 months " " " "	158	87
6	4 months " " " "	210	
7	6 weeks " " " "	230	
8	7 " " " " "	168	
9	3 months " " " "	145	

The ultimate object should be to ascertain the minimum keeping dose and the maximum interval between the individual doses or courses of treatment consistent with the maintenance of the normalised pressure.

The posology of emanation water is quite different. Not only does emanation lose half its strength in 3·85 days, but, owing to its relatively low solubility in water, much is lost from solution after a few moments' exposure to the air. Only with special precautions and there is no opportunity for cumulation, which is so marked a feature when radium chloride is taken internally. A much more generous scale of nominal dosage is therefore possible (e.g., 250 microcuries daily, Pinch [12]), but the effects expected are relatively much less, both in degree and in permanence.

All the cases described in the Table are examples of primary arterial trouble, varying from simple hyperpiesis in Case 1 to fairly advanced arteriosclerosis. In every instance the urine was free from albumin, and the Wassermann reaction in the blood was negative. Whether the method can be applied to syphilitic disease of the vessels or to hyperpiesis secondary to chronic nephritis remains to be shown, but some years ago W. Armstrong [1] recorded a marked fall in blood pressure in a chronic nephritic during a course of emanation water therapy. If this proves to be a constant finding it will be interesting to note whether the fall induced adds in any way to the difficulties of the damaged kidney, or whether the patient truly benefits from the change.

In this series of cases the psychic element can be excluded as a source of confusion in interpreting the readings. The patients had all been seen on many occasions prior to the institution of radium therapy—e.g., Cases 5 and 6, observed from 1926 to 1931. They were quite accustomed to the sphygmomanometer, and did not realise that any strikingly new scheme was being introduced. The effects observed were in each

case additional to any which could be secured by cleansing the alimentary tract through diet, aperients, lubricants, and adsorbents, and on no occasion were nitrites or any other vasodilators used during the progress of the treatment. The points of clinical interest are :—

(1) *Dosage.*—The average amount of radium chloride used was 2·9 microgrammes, and the usual daily dose 0·05 microgramme.

(2) *Pressure reduction* varied from 12 to 54 mm. systolic, the average fall being 35 mm. Whenever records were kept of the diastolic pressure this was found to vary pari passu, but through a smaller range.

(3) *Permanence of result.*—In Case 1 the pressure continued to fall after the end of the course of treatment, and eventually, six and a half weeks after the last dose of radium, had almost reached a normal figure. Case 2 behaved in a similar manner, and a completely normal value was recorded two and a half months after the conclusion of radium therapy. Case 3 maintained a normal level on the very trivial keeping dose of 0·025 microgramme once weekly. Case 5 offers an interesting demonstration of the rapid fall in pressure which can be secured by larger doses. As a rule, the daily dose was 0·05 microgramme, but this patient was given 9·00 microgrammes in the course of a week. During this period the pressure fell almost 40 mm., and the patient felt much fitter. Cases 6 and 7 are examples of the slow relapse which sometimes occurs when the radium is omitted. In each case a further course was given, and when the blood pressure had once more fallen a small keeping dose and a suitable interval were determined which were sufficient to prevent any further relapse.

Pharmacology.

(*a*) GENERAL.

In small amounts radium acts as a cell stimulant. The redness of the skin after surface radiation and the healing of tuberculous ulceration are common examples of this action. Zarvarsin induced five-fold. mitosis in the nuclear material of the hydra, and parthenogenesis has been established in certain unfertilised eggs, but overdose leads to cell death. The changes in the blood following the use of radium illustrate the importance of dosage very clearly. Small therapeutic quantities raise the red cell [1] and hæmoglobin content in anæmic states. Aubertin and Beaujard [2] have recorded true leucocytosis in several species of laboratory animal, but, as A. E. H. Pinch and J. C. Mottram have so fully recorded, radium workers exposed to toxic amounts of γ radiation become profoundly anæmic, exhibiting severe leucopenia and thrombocytopenia. In certain cases the condition has been fatal. Arsenic provides an approximate analogy, in that small amounts improve the blood picture, whilst slightly excessive and repeated doses cause atrophy of the bone-marrow with severe aplastic anæmia. These considerations need not deter us, however, from using either arsenic or radium in an appropriate manner. In each case there is a sufficiently wide margin of safety between the beneficial and the toxic dose to justify confidence in the prescription of the drug.

(*b*) RADIUM SALTS AFTER ABSORPTION.

When a soluble radium salt is injected or given by mouth the situation is somewhat complex. Radium is a heavy metal, and behaves as such in the body, becoming fixed and stored in the viscera, notably the liver and spleen. From these reservoirs it is given up slowly and excreted by the small intestine and the colon,[3 4] also to a small extent by the kidney. This phenomenon of storage and slow excretion ensures a continuous action in contrast to the transient one of emanation alone, but it also leads to cumulative poisoning if incorrect doses and intervals are employed. The total consumption must be carefully controlled. Workers in luminous paints containing radium salts may, through the process of modelling their brushes with their lips, swallow a considerable amount of radium in the course of a year, and cases of fatal anæmia have occurred with local necrosis in the mouth and throat where particles of the material have lodged. During its passage through the body a portion of the radium is split up into α rays and radon or emanation each of which is capable of exerting a pharmacological action.

α rays are positively charged particles of atomic dimensions, unable to penetrate soft tissues for more than a fraction of a millimetre but exerting a very intense action within these limits. When unscreened radium is applied to the surface of the body only the most superficial strata come within the range of α rays but when radium is taken internally the α effects are extended to the most remote parts of the body and probably excite most of the reaction observed at inflammatory foci.

Radon is a heavy gas containing all that remains of radium after the emission of α radiation. It is sparingly soluble in water, but relatively freely in lipoids. This high lipoid solubility coefficient determines its distribution,[6] in which respect it differs widely from the radium itself, which, as already mentioned, accumulates in the liver like other heavy metals. Radon is rapidly excreted through the lungs. After the drinking of a radon solution free from radium absorption is quick, distribution follows in accordance with the lipoid solubility of the radon, and excretion is so effective that none remains in the body for more than four hours ; but when radium is taken internally radon is given off continuously by the accumulated metal, and the organism is brought under the influence of a steady stream of radon. Not only is radon turned out in the expired air, but its life as a chemical entity is a very short one, half being destroyed in about three days. By progressive disintegration it produces in series the elements radium A, B, C, &c., further α rays, and two new classes of radiation, β and γ, respectively. Radium A, B, and C have a relatively short existence, and only a few minutes in which to exert any pharmacological effect, but radium D has a long life of many years before it.

Radium D chemically is a radioactive isotrope of lead, and distributes itself in the body along identical lines. This was clearly shown by Svend Lomholt,[7] who injected radium D into experimental animals. Its distribution was mapped out by observations of the relative effect of sections of various tissues on photographic plates in the dark, and comparison made with the distribution of injected lead salts, as determined by chemical analysis. In both cases heavy deposits were found in the bones. It is interesting that at the autopsies on the cases of radium poisoning amongst luminous paint-workers, already referred to, the viscera, and in particular the bones, were strongly radioactive.[5 8]

There seems little doubt that radium D must be taken into account when considering the pharmacological action of radium salts given in repeated doses by mouth, and it may, in part, explain the conspicuous effects produced in the treatment of chronic arthritis by this method.

γ Rays.—Distant exposure to lead-screened radium in sealed containers provides almost pure γ ray

therapy. These rays classified as electro-magnetic are very penetrating and are probably responsible for the blood changes observed in radium workers. It has proved impossible to differentiate the particular activities of *β rays* from the general complex.

Since radium is re-excreted by the bowel, its action on the alimentary tract calls for special comment. J. C. Mottram,[9 10 11] using toxic doses, has shown that fat assimilation is interfered with seriously, also that, after an initial increase in the flow of mucus, this secretion dries up. The gland cells then degenerate, and bacteria invade the connective tissue of the villi. This is followed by desquamation and ulceration and, finally, by bacteriæmia. The period of invasion of the blood stream coincides with the onset of severe leucopenia and thrombocytopenia, but the condition is not necessarily fatal. The therapeutic range under discussion corresponds with much smaller doses, those which do not produce a pathological blood picture, but improve it. When radium is used within these limits there is no danger of alimentary upset, and the matter only becomes of practical importance in connexion with the massive doses used in the treatment of malignant disease.

(*c*) ACTION ON THE BLOOD-VESSELS.

Very little accurate experimental evidence is available in explanation of the clinical effects described in the earlier part of this paper, but several hypotheses can be put forward.

(1) *Diuresis.*—Radium diuresis is well known, and may be responsible for the polyuria which immediately follows the drinking of certain radioactive waters of low mineral content; a polyuria which is prompter than that induced by ordinary tap water. With increased urinary flow there are fuller opportunities for the excretion of pressor substances and for dehydration, either general, or selective for certain colloid systems, which might have a beneficial effect on blood pressure. At the present time the matter is completely indeterminate, but from my own observations I am satisfied that the fall which follows the use of radium is additional to any fall which can be secured by the simple process of flushing the system with copious and repeated draughts of plain water.

(2) *Improved condition of the vessel wall.*—Radium may diminish the actual degenerative, subinflammatory, and other lesions affecting the vessel walls. Vascular endothelium is very sensitive to the action of radium, and considerable histological research has been done in this connexion. Mild surface radiation, as used in the treatment of angeiomata, causes the endothelial cells to multiply. Fibrosis follows, and finally the occlusion of the finer blood channels. With more intense radiation, the endothelial cells vacuolate and quickly degenerate, the vessel walls become infiltrated with leucocytes, and the swelling distorts the lumen. Extravasation may occur. The doses for internal use under discussion are far smaller than those just referred to, and suitable to provoke reaction within the range conducive to healing rather than to physico-chemical trauma. In thromboangeitis obliterans, where the leucocytic infiltration and other histological changes in the arteries and veins are strongly suggestive of bacterial invasion of the vessel walls, radium chloride administered by mouth produces a marked local reaction in the affected limbs, and may for several days add substantially to the pain. This view of provocative reaction and subsequent healing is an attractive one, and, within certain limits, may be true; but it does not account for everything. For example, it does explain the rapidity with which the fall in pressure can occur and the ease with which relapse takes place if the treatment is cut short. Reaction and healing must inevitably be slow. The oscillation of blood pressure occasioned by the intermittent use of radium is too quick to be a reflection of anatomical changes in the vessel wall.

(3) *Improvement in general health.*—Whilst taking small amounts of radium patients look and feel fitter. The hæmoglobin percentage rises, and so does the red cell count. The leucopenia, with relative lymphocytosis common in toxic states, is often replaced by a normal white count, notwithstanding the fact that amongst radium workers the reverse observations have been made. It would appear to be entirely a matter of dosage, and with the doses under discussion the only blood changes observable are those of normalisation. The all-round increase in functional efficiency enables the patient to deal more effectively with all morbid processes, including those in the vessels and those associated with the primary causes.

(4) *Vasodilatation.*—Radium chloride may have a simple vasodilator action, causing, as Rouget suggests, a temporary paralysis of the contractile cells. Its storage in the liver, and the slowness of its excretion, would account for its effect being steadier and more lasting than that of nitrites. The experimental evidence on this point is not quite clear. The difficulty of completely freeing radium from soluble barium salts confuses the laboratory findings, because of the rapid and intense pressor action of the latter when injected. Moreover, compared with known vasodilator drugs, radium is admittedly slow in action, and the effect is far more conspicuous in hyperpiesis than in the normal.

Conclusions.

Future research will help us to visualise more clearly the precise mode of action of radium. In the meantime valuable advantages can be secured by using the substance medicinally. The question of dosage has been discussed and recommendations made in an earlier paragraph. The method is one of great utility and easy to apply. The only difficulties encountered have been due to reactions at inflammatory foci. These were particularly common in chronic arthritis and fibrositis, and at the time were a hindrance, although at a later date they appeared to be followed by a corresponding phase of improvement. Pain reactions also occur in thromboangeitis obliterans, and correspond with a temporary aggravation in the symptoms of partial occlusion. If such a condition is suspected, even in a larval form, great caution should be used in the early stages of radium therapy. Finally, it would be unwise to neglect other general schemes of treatment based on what appears, after careful clinical examination, to be the pathogenesis of each particular patient's syndrome. It is especially important to rid him of sepsis and to cleanse his alimentary tract by simplifying his diet, aiding digestion, speeding up evacuation, and protecting him with adsorbents from the effects of toxic substances produced in his bowel. If general treatment of this kind is instituted in the first place and kept up in a modified way afterwards, the patient will be put in the best position to reap the fullest benefits from the additional reduction in pressure secured by radium therapy.

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MASSIVE COLLAPSE OF THE LUNG

WITH NOTES ON A POST-TRAUMATIC CASE.

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MASSIVE collapse of the lung is of interest whenever it is encountered, not merely because of its relative rarity in civil practice—apart from the post-operative cases—but also because any one case may add a little to our knowledge of its ætiology.

William Pasteur [1] first defined it as "a total deflation (as opposed to lobular or patchy collapse) of a large area of lung tissue, of sudden onset," and considered that it occurred "in the absence of obstruction of the airway or of any known cause of compression"—due to failure of inspiratory power." Cases have since been recorded in association with such diverse conditions as acute poliomyelitis, diphtheria, pulmonary tuberculosis following hæmoptysis, pneumonia, bronchitis, penetrating and non-penetrating wounds of the chest, thyroidectomy, injuries to the spine and fracture of the pelvis, and as a result of lipiodol injection into the trachea, to say nothing of the post-operative cases.

The condition is recognised clinically by its characteristic physical signs: immobility of the chest and dullness to percussion over the collapsed lobe or lobes, with absent or bronchial breathing and displacement of the mediastinum towards the affected side. Radiographically it is shown by a dense opacity of the lobe or lobes, together with marked displacement of the mediastinum and trachea towards the affected side, elevation of the diaphragm and narrowing of the rib interspaces, so that the hemithorax on the side of the lesion is considerably reduced in size.

What is the underlying mechanism? Does the lung collapse actively by the contraction of its intrinsic bronchial musculature, and do the diaphragm, chest wall, and mediastinum passively accommodate themselves to the new pressure relationships? Is there bronchial or bronchiolar obstruction leading to absorption of the air distal to the obstruction and secondary displacement of the diaphragm, chest wall, and mediastinum? Or is there a condition of paralysis of the external muscles of respiration which induces a passive lobar collapse of the underlying lung?

ÆTIOLOGICAL THEORIES.

Experimentally, massive atelectatic collapse has been caused by introducing a rubber balloon into the bronchus of a dog. This was filled with an opaque medium and the bronchus thereby occluded. Under the X ray screen the collapse was observed to be a gradual process, and fully developed only after an interval of six hours. When, however, the lungs were inflated with oxygen instead of air, the collapse was complete half an hour after the balloon had been inserted. As long ago as 1879, Lichtheim showed that, if the blood-vessels supplying the area of lung distal to the plugged bronchus were tied, no collapse ensued. Clearly, such an artificially produced atelectasis is dependent on absorption, via the blood-vessels, of the air behind the obstructed bronchus; the more rapid absorption of oxygen than air is readily understood.

Elliott and Dingley [2] divided one phrenic nerve and hemisected the cord on the same side at the level of the second and third cervical segments in order to paralyse the diaphragm and intercostals, but this procedure did not bring about collapse of the lung. They concluded that in the post-operative cases the bronchioles became obstructed with inflammatory œdema and mucus, and that the air was absorbed behind the obstructed lumen.

Charlton Briscoe,[4] however, is very emphatic that an obstructed bronchus is by no means always found post mortem, and stresses the importance of the position of the diaphragm as the effect of posture; he concludes that in post-operative cases the collapse is produced by an inflammatory process of the crus and one-half of the diaphragm or pleural membrane covering it. In a more recent communication [8] he considers it to be due to a combination of simple deflation and an attack of acute pleurisy. Simple deflation, he says, occurs as a result of the ascent of the diaphragm which accompanies the assumption of the supine position. Here it is difficult to agree since, as A. E. Barclay [9] has pointed out and we ourselves at the hospital have also observed, there is very little difference radiographically between the position and excursions of the diaphragm in the supine and in the erect state.

Rose Bradford [3] invokes reflex spasm of the bronchioles as the determining factor, whilst Regan,[5] in support of this theory, reports a case in association with acute poliomyelitis, and considers that the diaphragmatic displacement is secondary to active contraction in the lung parenchyma.

Jacobaeus [6] observes that, during the phase of atelectatic collapse which may follow lipiodol injection into the trachea, the bronchi are narrower than afterwards, when the collapse has disappeared. He notes too that those lungs which underwent massive collapse after lipiodol injection did so within a quarter of an hour of the operation, that is, long before the air or even pure oxygen alone would have had time to be absorbed, and that they were invariably normal lungs, the bronchi of which had not lost their contractility. Apparently there are at any rate two factors at work in this class of case: bronchial obstruction and active contraction of the bronchial muscles, and the collapse occurs earlier than could be accounted for by bronchial obstruction alone.

Woodburn Morison [7] considers that "there is a reflex disturbance of the sympathetic and vagus innervation of the lungs, resulting first in dilatation of bronchi with cessation of wave-like movement and a consequent accumulation of mucus." This he regards as due to an overacting sympathetic, and points in support to the rise in temperature, which so often occurs. "The balance between the sympathetic and vagus may be quickly restored, and the condition rapidly clear up with the return of cough and expectoration of mucus. On the other hand, as the overaction of the sympathetic passes off, the vagus may reassert itself too strongly and cause a

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sudden spasm of the musculature involving a whole lung or a whole lobe of a lung."

CASE RECORD.

The case we wish to describe is, we believe, of special interest because it is associated with a compression fracture of the lumbar spine in the immediate neighbourhood of the origin of the crus of the left diaphragm.

A coal-miner, aged 25, was admitted to the hospital as a surgical emergency, complaining of pain in the back and over the left side of the chest. In the course of his work as a miner on Jan. 5th, 1931, at 5.15 P.M., he was riding on a tub along a low-roofed passage. He suddenly noticed a cross-beam, and in trying to avoid this he arched his back; the lower dorsal region, however, came into violent contact with the beam, and he fell against the tub in front. With the help of two companions he was able to walk a few hundred yards to the cage and was brought to hospital by ambulance.

On examination at 7.30 P.M. there was no external evidence of injury, with the exception of a small bruise in the region of the twelfth dorsal vertebra. He complained of acute pain here, and also over the left fifth and sixth ribs in front. These two painful areas were tender on palpation: a provisional diagnosis of injury to the twelfth dorsal vertebra, and (?) injury to the fifth and sixth left ribs was made. There were no abnormal physical signs in the chest. Next day he appeared fairly comfortable until 6 P.M. when, without any warning, he became alarmingly ill. He was severely dyspnœic and cyanosed. Respirations were shallow but not markedly increased in frequency. Deep inspirations caused severe pain in the left chest. The temperature was 102°, the pulse-rate 134, and the respiration-rate 26. He had a troublesome cough, and the sputum was mucoid; it was not flecked with blood or of a rusty character.

Movement of the left chest was almost imperceptible; on the right it appeared exaggerated. The cardiac impulse was diffused over the third, fourth, and fifth interspaces, and the apex-beat was 1½ in. to the left of the nipple line. Palpation confirmed the position of the apex-beat and the relative immobility of the left chest. Percussion revealed impairment of the whole of the left chest, more marked at the base than higher up. The right chest was hyperresonant. Breath sounds were absent at the left base and the left axilla, and very weak in the upper zone. Exaggerated breath sounds, almost bronchial in type, were found in the right upper zone; lower down on this side they appeared normal, save for an occasional râle in the middle zone. The feature of primary importance was undoubtedly the displacement of the heart towards the dull left hemithorax.

Jan. 7th.—Temperature was normal; pulse-rate, 106; respiration-rate, 22.

8th.—Temperature was normal; pulse-rate, 88; respiration-rate, 22.

10th.—The physical signs in the chest were much the same, though less marked. The apex-beat, though less displaced, was still outside the nipple line. The dulness and absent breath sounds were limited to the lower axilla and base, though the upper zones were distinctly less resonant than on the other side. A diagnosis of massive collapse of the left lung was made. A radiogram taken on this day showed a typical massive collapse of the left lung, in which re-expansion had already begun in the peripheral parts of the upper two zones. The skiagram of the dorsal spine showed no fracture.

17th.—Physical signs were normal and X ray showed the left lung to have completely re-expanded.

A few days later he was discharged. On Feb. 4th he came up to the surgical out-patients with the signs of a fractured lumbar spine and was readmitted. Radiography showed a fracture-dislocation of the lumbar spine involving compression of the left antero-lateral region of the second lumbar vertebra, fracture of the right transverse processes of the second and third lumbar vertebræ, and an area of callus on the right side of the second lumbar vertebra. (It is clear that he had had a fractured lumbar spine on his first admission, but there had been no deformity then, his pain and tenderness had been higher up, and the radiogram of the dorsal spine had just missed the second lumbar vertebra.) The main incidence of the damage was at the left antero-lateral part of the second lumbar vertebra—the very region where the left crus of the diaphragm takes its origin. But experimentally, and as a result of phrenicotomy in man, paralysis of one-half of the diaphragm does not induce massive collapse of the homolateral lung, and it is difficult to see how complete avulsion, even of the crus, could have done more than paralyse the diaphragm.

It would seem then that, although we have good circumstantial evidence of trauma to the crus of the diaphragm, we cannot consider the collapse of the lung to be due to it and to it alone. Since, however, the sympathetic chain actually pierces the crus, it would not be unreasonable to suppose that it was implicated and that the balance between the sympathetic and vagus innervation of the lungs, as suggested by Woodburn Morison, was upset. During the long latent period—24 hours—between the accident and the collapse of the lung, the sympathetic may have been overacting, as evinced by the accumulation of mucus and the rise in temperature. Then suddenly the vagus took the upper hand, the musculature of the bronchi and parenchyma of the left lung went into spasm, and massive collapse of the lung resulted.

We thank Prof. Graham Simpson for permission to publish this case and for his help and suggestions, and Dr. J. L. A. Grout for his assistance with the radiograms.

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HEREDITARY ASPECTS OF LEBER'S OPTIC ATROPHY.*

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IN the human, the female somatic cells have two sex chromosomes (X X) one from each parental germ cell, while the male somatic cell contains only one X-chromosome. This X-chromosome in the male cell is derived from the egg, and is associated with a Y-chromosome, derived from the sperm, which carries few active genes. A sex-linked disease is considered to depend on the presence of a factor resident in the X-chromosomes, which usually is recessive and therefore appears much more frequently in the male, possessing only one X-chromosome, than in the female, possessing two. The sex-linked trait can only become manifest in the female if for some reason the factor becomes dominant, or if both X-chromosomes carry the recessive factor. If

* Abridged from a paper read before the Annual Congress of the Ophthalmological Society of the United Kingdom, 1931. This will be published in full in the Transactions of the Society.

the sex-linked disease is dependent on a single X-chromosome-borne factor, the following mode of inheritance is expected :—

1. With a carrier mother and normal father 50 per cent. of the sons should be affected; all the daughters should be normal but 50 per cent. carriers.
2. With a normal mother and affected father, all the sons and daughters should be normal, but half the daughters should be carriers. There would be no transmission through sons.
3. With an affected father and affected mother all sons and daughters should be affected.
4. With an affected mother and normal father all the sons should be affected, and all the daughters should be normal, but carriers.

It would also be expected that affected females would be 1/200 as common as affected males—as has been pointed out by C. B. Davenport (1930).

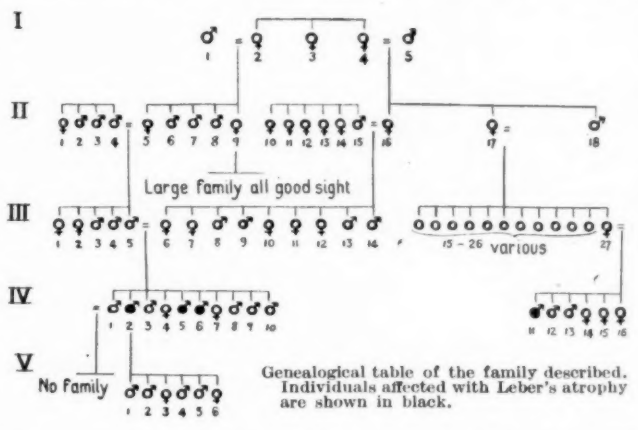
With a view to formulating the mode of inheritance in human sex-linked diseases, the diseases most extensively studied have been hæmophilia, colour-blindness, and hereditary optic atrophy or Leber's disease. None of them appears uniformly to follow the rules of inheritance of a single recessive character. Certain of the exceptions to the rules can be explained without discarding the single factor theory. For example, the scarcity of female cases in hæmophilic families may be due to death in utero, while the unexpectedly large number of female cases of colour-blindness and Leber's atrophy may be due to the factor becoming dominant in females who are only heterozygous, and who ought, according to the rule, to act only as carriers, without any manifestation in themselves of the disease. Exception to rules 3 and 4 might also be due to the factor having become dominant in a heterozygous female—the affected mother in those instances. Other departures cannot, however, be so easily explained. Thus in Leber's disease an affected male rarely has affected grandsons. R. Kawakami (1926), in examining the pedigrees of affected males, found that only 7 per cent. of the maternal grandfathers were affected. On the other hand, 40 per cent. of the maternal grandfathers in colour-blindness were found to be colour-blind. He also found that in Leber's disease the tendency of the disease factor to become dominant varies in different races.

Many pedigrees of families affected by sex-linked diseases have been reported which show other aberrant features in the mode of inheritance.

From the foregoing it is apparent that the mode of inheritance is not the same in the various sex-linked diseases. Further, the variations observed in many of the pedigrees suggest that, in some strains at least, an accessory factor is concerned in the development of the disease. The pedigree in the cases of Leber's optic atrophy here reported supports this view.

A FAMILY HISTORY.

I have to report four cases in an Orcadian family, all in the same generation (see Figure). Their parents were second cousins. The first (IV., 2) was a man of 40 who suffered from failing vision and pains in the legs. He had a large central scotoma and the discs were blue-grey, with sharply outlined edges and prominent lamina cribosa. The patient was unable to converge, but no other abnormalities were found in the eyes or in the rest of the body. The second patient, a brother of the first (IV., 5) was a man of 37 with similar symptoms and signs. A third brother (IV., 6), aged 35, first complained of headaches and dimness of vision in 1930, 13 years after the first case, and his vision failed so rapidly that he had to give up work three weeks later. The fourth case was a man, aged 41 (IV., 11), a second cousin of the other three. His eyesight became affected quite suddenly when he was 20 and he is unable to read, but can work on the farm.



Genealogical table of the family described. Individuals affected with Leber's atrophy are shown in black.

The present generation (IV.) is now round about 40 years of age; three are dead, but had good eyesight. Of the remainder the sight is good in seven and defective in Nos. 2, 5, 6, 9, 11. The eyesight is good in all the children of No. 2 (generation V.); their ages range from 2 to 17.

The family live on a small island and have a remarkable knowledge of their forbears. Many of the particulars have been confirmed by inquiry from more than one witness.

DISCUSSION.

The special interest in the history of this family lies in the appearance of three cases in the generation following consanguineous mating. Although the information available with regard to the three preceding generations gives no definite indication of the presence of the disease, the occurrence of those cases provides strong presumptive evidence that the original stock bore a trait of the malady. This supposition is supported by the occurrence of Case (IV.) 11, who is a direct descendant of the common stock through the female line.

According to the accepted theories of inheritance, consanguinity can only increase the incidence of a familial disease if both parents carry the disease factor. In sex-linked disease, however, the male does not carry the factor when he himself is free from the disease, and therefore a consanguineous mating should not increase the risk to the offspring if the father is unaffected. Actually, in the sibship in which the first three cases occur, the proportion of cases affected is that which is expected when the mother is a carrier and the father a normal male. In tracing the disease factor in the pedigree under consideration, not only must the mothers (III.) 6 and (III.) 27 of the affected persons be considered carriers, but also their female ancestors (II.) 16 and 17, and (I.) 4. Why then was there no case of the disease among the male children of these, and in particular among the children of (II.) 16 and 17? It would, for example, be expected that some of the males (III., 8, 9, 13, and 14) would be affected. We find on the contrary that all of these reached old age

and enjoyed good eyesight, with the possible exception of Case (III.) 14. Cases (III.) 8 and 9 are both alive, aged respectively 73 and 70, and have excellent eyesight. Case (III.) 13 also had good eyesight, and died, of heart and kidney disease, when aged 75. Case (III.) 14 died in a similar way at the age of 76. His eyesight was good until the age of 60 when it suddenly became bad. Thereafter he was unable to read but continued to work on his farm. No further information is obtainable about his case, but it is possible that this was one of the rare cases of Leber's disease developing late in life.

The fact that the cases under consideration appeared in the children of a consanguineous mating might indicate that a second factor, not sex-linked, and multiplied by the consanguinity, was concerned in the manifestation of the disease. This, however, is unlikely, in view of the fact that 50 per cent. of possible males in the sibship are affected, so that the mutation of a single factor only need be considered in order to account for the cases occurring.

The other possibility is that consanguinity has reduced the general vigour of the stock in some way, bringing about the result that a dormant trait has manifested itself again. The health record in the preceding generations is therefore a matter of interest. We find that in Generation I. all lived to an "old age" with the exception of one who died in infancy. In Generation II., one died in infancy, two of "old age," and the 12 of the remaining 15 about whom particulars are available, lived to an average age of 78. All had good eyesight. In Generation III., 1–14, four died in infancy, three died at the ages respectively of 44, 75, and 76, while seven are alive of an average age of 72. These particulars point to the stock having been exceptionally healthy, and this fact might reasonably be regarded as connected with the immunity from the disease which the earlier generations enjoyed. It seems probable that consanguinity, by reducing the vigour of the stock, has undone the achievements of the preceding generations in subduing the disease tendency.

This possibility is all the more reasonable when we consider that Leber's disease, alone among diseases of this group, shows no evidence of its presence until many years after birth, and may indeed be classed as an inherited tissue vulnerability, being thus a condition likely to be affected by the general vigour of the stock.

I am indebted to Prof. Edwin Bramwell for permission to publish two of the cases and to Dr. W. C. Souter, of Aberdeen, for notes of a third. I am also indebted to Prof. F. A. E. Crew for assistance with regard to the hereditary aspects of the cases. I am in receipt of a grant from the Medical Research Council.

QUEEN'S NURSES CONTRIBUTARY SCHEME.—A scheme has been launched at Brighton which is said to be necessary for the continuance of the Queen's nurses in Brighton and Hove. It has been organised on lines similar to those of the Sussex provident scheme for hospital benefits and additional medical services, even to the formation of groups and voluntary collections by collectors appointed by each group. It will ensure attendance of Queen's nurses for households by a weekly payment at a minimum of a penny per week, payable weekly, monthly, quarterly, or half-yearly as desired. There is also a graded system of payments to suit people according to their incomes. Success has attended similar contributory schemes for trained home nursing care in various parts of England, notably at Leicester, which has a roll of 32,000 persons contributing, and where the minimum contribution has been reduced from one penny to one halfpenny a week. Under the new scheme the Queen's nurses will continue to carry on their work of providing free nursing for those too poor to pay for it, and thus voluntary subscriptions will be required as heretofore.

ON THE CHEMICAL NATURE OF PELLAGRA TOXIN

AND THE THIOSULPHATE TREATMENT OF PELLAGRA.*

BY IBRAHIM SABRY, M.B. CAIRO,

SKIN PHYSICIAN TO THE GOVERNMENT HOSPITAL, ALEXANDRIA, EGYPT.

IF an apple or a potato is cut across and left for some time in the atmosphere the cut surface will soon be coloured. In other words, something uncoloured in the juice has been oxidised in the air by a ferment to form pigment. The nature of this uncoloured substance, or the mother substance of pigment, was long a matter of dispute, until it was at last proved to belong to the phenyl group and to be practically indistinguishable from tyrosine (oxyphenylalanine), which, in the presence of a specific ferment—oxydase—changes to a coloured end-product similar in every respect to vegetable pigment.

A similar process has been observed in the animal kingdom—e.g., in the ink-fish. A specific ferment for tyrosine, called tyrosinase, has been found by Fürth and Prizbram[1] in the ink-glands of this fish; it has the power of changing the colourless tyrosine (which is an intermediate product of metabolism of this fish) to an inky secretion. This can be experimentally proved in a test-tube by adding some extract of the ink-glands to a solution of tyrosine, when we get at once a yellowish-orange-red colour, which later turns to black.

Hence we have the important fact that two factors are essential for the manufacture of pigment—namely, a mother substance of the phenyl group, allied to tyrosine, and a specific ferment (oxydase) which oxidises this uncoloured substance to a coloured end-product.

B. Bloch[2] applied these phenomena to human beings. In a treatise of absorbing interest, he expounds his "dopa" reaction, which proves beyond doubt that human pigment (melanin) is also formed from a mother substance by a ferment.

Bloch placed pieces of living skin in different solutions of aromatic compounds—e.g., tyrosine, adrenalin, and tryptophan, and also in a solution of "dopa" which he prepared from the vegetating seeds of beans (*Vicia faba*), where they are found as intermediate products of protein metabolism. He next prepared frozen sections from these pieces of skin, and found that only those placed in the dopa solution had shown any reaction. The basal cells, the cells of the stratum spinosum, the epithelium of the follicles, the outer hair cuticle, and the cells of the hair matrix all showed collections of black granules in varying quantity which, both in shape and size, resemble melanin.

Dopa differs from tyrosine only in that it contains two hydroxyl groups instead of one—i.e., it is a dioxyphenylalanine. Bloch concluded (1) that in human skin there must be an oxidising ferment which, owing to its specific action on dopa compounds, he called "dopa oxydase," and which is present wherever melanin is formed; (2) that melanin is made from a mother substance which is chemically a dioxyphenylalanine.

From these conclusions of Bloch's I have formulated my view on the chemical nature of pellagra toxin. We know that the characteristic pigmentation of pellagra is an invariable concomitant of the disease. We know, further, that pellagra is a toxæmia. The

* Based on a paper read before a conference held by the Egyptian Medical Association and the Society of Hygiene and Tropical Medicine of Egypt on May 15th, 1931.

[1] See Kyrle, J.: Histo-Biologie der Haut und Ihrer Erkrankungen, Vienna and Berlin, 1925, vol. i., p. 81.

[2] See Kyrle: Op. cit.

inference to be drawn from this combination of circumstances is that the toxin of pellagra, be its origin what it may, must be related to this hyperpigmentation. It must be the initiator of the extra pigmentation, and cannot differ materially from the mother substance of pigment itself. In other words, the pellagra toxin must be a dioxyphenylalanine.

In pellagra the hyperpigmentation is more or less localised in the exposed parts of the body. This phenomenon is easily explained in view of the power of light as a strong stimulant of pigment formation, as in sunburn. The fact that light also stimulates hyperpigmentation in pellagra is further evidence that the mother substance of pigment and the toxin of pellagra are not unlike.

THE CHOICE OF THIOSULPHATE.

In selecting a substance possessing the greatest chance of success in the treatment of such a disease as pellagra I naturally aimed at a non-toxic drug which, while it possessed powerful parasitic and germicidal properties, also possessed an affinity for the pellagra toxin. The idea was that such affinity would lead through chemical combination to the ultimate destruction or disintegration of the toxic substance. My choice of thiosulphate was based on the hope that it fulfilled these combined properties. It is a salt of extraordinary behaviour, its properties being numerous and varied. Its power of liberating sulphur dioxide and hydrogen indicate it at once as a powerful parasiticide and germicide. Indeed, so powerful are these substances in their effect that it is inconceivable that the pellagra organism, should one exist, could survive exposure to them. But even more important than this is the supposed affinity of thiosulphate for dioxyphenylalanine. Here I admit I was on ground less sure. I had no data which rendered such affinity a legitimate expectation. At the same time I knew I was dealing with a substance which, notwithstanding its varied uses in industry, had never been explored by medical science. I knew, further, that this substance was possessed of divergent and unexpected properties.

My next step was to find out what becomes of sodium thiosulphate in the blood. To this end I carried out the following experiments:—

1. I took blood and urine from A., who had taken 49 injections of 10 c.cm. of 10 per cent. solution of sodium thiosulphate; B., who had taken 16 injections of 10 c.cm. of 10 per cent. solution of sodium thiosulphate; and C., who had taken 10 injections of 10 c.cm. of 10 per cent. solution of sodium thiosulphate. Not a trace of thiosulphate could be detected in the blood, while the urine was loaded with it.[1]

2. I took samples of blood and urine, one of each, from D., who had taken 10 mg. of thiosulphate; E., who had taken 8 mg. of thiosulphate; F., who had taken 12 mg., 15 and 30 minutes respectively after the last injection. The thiosulphate could be detected in both blood and urine.

3. I took a sample of blood and one of urine from G., who had taken only one injection of 10 c.cm. half an hour after the injection. This was repeated half an hour later. Thiosulphate could be detected in the first sample of blood but not in the second.

From these experiments we may conclude that thiosulphate does not remain long in the blood. In all probability part of it either disintegrates or combines with other substances, and most of the remainder is quickly eliminated by the kidneys.

The following experiment was next performed with a view to ascertaining whether or no any changes took place in vitro:—

A known quantity of thiosulphate was added to 15 c.cm. of blood taken from a pellagra patient and put in the incubator at 37° C. for 24 hours. Almost all the salt was recovered from the blood.

ÆTIOLOGY OF PELLAGRA.

The vitamin theory is now in the forefront; I must say that I contest this theory from top to bottom. If the disease were due to lack of vitamins it would not be possible to obtain such remarkable improvement as that which follows thiosulphate treatment within a relatively short time. No disease due to vitamin deficiency has ever been known to improve without the administration of the lacking vitamin, and certainly not from the mere introduction of a drug which, from the nature of its preparation, cannot possibly contain any vitamin.

The maize theory, on the other hand, can readily be reconciled with my view on the pellagra toxin. That theory ascribes the disease to a limited maize diet. In support of it, evidence was brought forward to show (1) that pellagra was prevalent in maize-consuming countries; (2) that the introduction of maize into Europe synchronised with the appearance of pellagra for the first time in the continent. This theory gives us no details concerning the causal relation between maize and pellagra, beyond the supposition that a pellagra toxin exists in maize; as far as I am aware, however, that toxin has never been identified.

I would here recall to mind Bloch's researches, which led him to recover dopa from vegetating seeds of beans (*Vicia faba*), and I would suggest that it is not improbable that there may be a substance of a similar chemical nature in the seeds of maize. I say that pellagra toxin is of such a chemical nature that it may occur in maize or in any other cereal, and that, in fact, it occurs in a specific cereal—namely, beans. Until dopa is isolated from maize also, the right thing, in my opinion, is to substitute a "bean" theory for a "maize" theory. It is a matter of common observation that maize-consuming countries happen also to be bean-consuming countries. Further, in Egypt at any rate, maize is only consumed in the villages, but pellagra is almost as prevalent in cities as in the country, and cities are notorious bean-consumers. As a matter of fact, it is not very important to insist on a bean-theory or a maize-theory, or any other cereal theory. All these so-called theories are really so many extensions of one main theory which I may conveniently christen the "dopa theory."

The parasite theory is equally reconcilable with my view on pellagra toxin, for the suspected organism may well convert something in our metabolism into the dioxyphenylalanine which produces the disease.

RESULTS OF THIOSULPHATE TREATMENT.

In any case, whether we hold the view that pellagra is a disease caused by dopa or by an organism, the merits of thiosulphate as an agent capable of counteracting these factors have been amply proved. The skin lesions are aborted in the early cases after a few injections, and disappear very quickly in the late and lingering cases, instead of lasting a whole season or even a whole year. It is very gratifying to note the quickness with which the gangrenous limbs (sometimes occurring as a late manifestation of this disease) completely heal up. The diarrhœa,

[1] The method of examining blood was as follows: 5 c.cm. of blood are taken from the patient and oxalated to prevent coagulation. These are then well mixed with 5 c.cm. of trichloracetic acid to precipitate all proteins. To the filtrate 1 c.cm. of 1 per cent. starch solution is added as an indicator, and this is then titrated with N/100 iodine solution. The thiosulphate is indicated if a drop of N/100 iodine solution gives a blue coloration. The method of examining the urine was as follows: 10 c.cm. of urine are added to 1 c.cm. of 5 per cent. lead acetate to eliminate all urates. 1 c.cm. of 1 per cent. starch solution is added to the filtrate and titrated with N/10 iodine solution as in blood.

which is a very persistent and most distressing symptom, which does not easily yield to any treatment even in early cases, altogether stops after a few injections in the non-advanced cases. In the advanced ones a distinct amelioration occurs. After a few injections the number of stools drops from 12 or 20 to four or six. The gastric symptoms cease before the treatment is over. The marasmus, the insomnia, and the melancholia soon improve, and the patients, who doubtless would otherwise have succumbed, not only survive but also add weight and vigour.

One thing of particular interest is that, with two exceptions, the 32 patients treated last year did not turn up this year, in spite of Dr. Abdel-Rahman Bey's endeavour to get them to give us a call. The two patients who came were : (1) one who, on examination, was found to be entirely free of the disease ; (2) one who had a slight relapse—a course of 15 injections was sufficient to bring matters back to normal. Failure to attend the hospital in all probability means that the patients treated last year did not get a recurrence.

During the present year I have so far had 24 cases under treatment. My method is to give a daily intravenous injection of 10 c.cm. of a 10 per cent. solution of sodium thiosulphate, sterilised in an autoclave. The number of injections required varies according to the case, from 20 to 60. There are no complications or contra-indications whatsoever.

My thanks are due to my director and chief, Dr. Abdel-Rahman Bey Omar, who has taken immense interest in this subject and has been kind enough to give me all possible assistance. Also to my brother, Dr. Mohamed Sabry, chemist of the municipal laboratories, who has carried out all the chemical experiments and analyses connected with the present research.

CLINICAL AND LABORATORY NOTES

CASE OF PERNICIOUS ANÆMIA TREATED BY INJECTION OF A LIVER EXTRACT.

By William Campbell Anderson, B.Sc., M.D. Aberd., D.P.H.,

late physician to the neurological department of the ministry of pensions, wales.

Up to the other day it was thought that some cases of pernicious anæmia are resistant to liver, liver extracts, or hog's stomach extract. The case described below I had intended to publish as "hepato-resistant," but on July 25th, 1931, I tried a recently issued preparation (Hepatex P.A.F.) which has altered its complexion, and appears to have resuscitated the patient, who was evidently dying, to a state well on the way to recovery.

The case is that of a man, aged 71 years, who has lived a healthy, outdoor life, and has been an abstainer and non-smoker. The only suggestion of trouble he has ever had has been his diet, with which he always had to be careful ; the slightest deviation from his domestic diet, such as a glass of wine and tobacco-smoke at a function, would thoroughly upset him. The disease was presumably well established before he called in medical aid, for his friends for the last two years have remarked that he was looking pale ; but as he felt no pain he just carried on. I was called in ultimately to see him for what was a complication of the complaint—namely, mild nephritis with some bronchial trouble, which yielded in due time to treatment. As his pallor began to get somewhat marked, with lemon tint, on May 12th he was put on liver in the usual daily doses, and a little later hog's stomach extract, glycerin of pepsin, and hydrochloric acid. (Examination of stomach contents revealed no free HCl.) On May 11th the blood-count was as follows :—

Red cells	1,545,000	Polymorphs	38 %
White cells ..	2,000	Lymphocytes ..	50 %
Hæmoglobin ..	40 %	Large mononucl. ..	12 %
Colour-index ..	1·3		

Eve's halometer, 42. No megaloblasts, but four normoblasts seen. Marked anisocytosis, moderate poikilocytosis, very occasional polychromasia.

On June 13th the red cells had fallen to 1,140,000 and the hæmoglobin to 25 per cent. The temperature was 100° to 101° F., and the pulse-rate 110 to 140. The patient had tried to persevere with expressed liver juice, together with orange or lemon juice, but had been obliged to discontinue it because of nausea.

On July 25th treatment by Hepatex P.A.F. began, and after three weeks' daily injections of 5 c.cm. (equal to 100 g. fresh liver) he was a different man. The first two injections were intravenous, at an interval of four days, but subsequently they were intramuscular. Even after the first injection a favourable response was noted, and by August 8th the blood-count was as follows :—

Red cells	1,720,000	Polymorphs	30 %
White cells ..	2,000	Lymphocytes ..	55 %
Hb.	40 %	Large mononucl. ..	10 %
C.I.	1·1	Eosinophils	5 %

Anisocytosis marked but poikilocytosis almost absent ; reticulocytes fairly numerous.

After the second injection, on July 28th, the pulse-rate fell to 90, and the bad condition of the heart, which seemed likely to end his life, has improved ever since. The pulse-rate is now 72–80 per minute, and regular ; the heart sounds are normal, whereas before they were rapid and irregular with a soft murmur at the apex. On Sept. 24th the following blood-count was obtained :—

Red cells, 2,700,000 ; white cells, 2000 ; hæmoglobin, 52 per cent. ; and colour-index, 0·96 ; Eve's halometer 43·5 (normal = 45). Anisocytosis +, poikilocytosis slight, no nucleated red cells seen.

The latest blood-count (Nov. 1st) is as follows :—

Red cells, 3,000,000 ; white cells, 2700 ; hæmoglobin, 55 per cent. ; halometer practically normal ; poikilocytosis very little.

The patient is now able to get about.

I have to thank Dr. H. A. Schölberg, pathologist to the Cardiff Royal Infirmary, for the blood examinations.

A CASE OF CHARCOT'S DISEASE IN JOINTS NOT COMMONLY AFFECTED.

By L. I. M. Castleden, M.D. Lond.,

assistant medical officer, highgate hospital.

Charcot's disease, the neuropathic arthropathy of tabes dorsalis, of which a hypertrophic and atrophic variety is described, occurs usually as a monarticular arthritis of the large joints, those of the lower extremity being more frequently involved than those of the upper. More than one joint may be involved at the same time, but whatever the combination it

is commonly the large joints which suffer. In the following case the small joints of the upper limbs were affected bilaterally.

CASE RECORD.

A general labourer, aged 55, was admitted to Highgate Hospital on Jan. 7th last, complaining of swelling and weakness of the right knee, which was first noticed three weeks previously after an attack of sharp shooting pains in both legs. There was no pain in the affected knee and it was inability to control it when walking which compelled him to come for advice.

Past history.—Troublesome ulcers on the soles of both feet off and on for several years. Was rejected for war service on account of his heart and of the condition of his hands which he stated had been present, though in a less marked degree, since before 1914. No history of "rheumatism" or "arthritis." Recently had experienced slight difficulty in starting micturition.

Condition on examination.—A thin pale man with bilateral ptosis more marked on the left. Mouth normal except for several carious teeth. The apex-beat and the left border of the heart were situated four inches from the midline in the fifth left space, and there was a soft systolic bruit in the mitral area conducted a little way towards the left axilla. No other abnormality was detected in the cardio-vascular system, the pulse and radial artery being normal and the blood pressure 144/80. Examination of the lungs and abdomen revealed no abnormality.

The patient had a typical Charcot's knee on the right side with a good deal of abnormal mobility, but no dislocation of the joint. Perforating ulcers were present on the soles of both feet. Both wrist-joints showed partial dislocation of the carpus towards the flexor aspect of the limb and ulnar deviation of the hand (Fig. 1). There was also a varying degree of forward displacement and ulnar deviation of the phalanges at the metacarpo-phalangeal joints. The extensor aspect of both wrist-joints and of all the metacarpo-phalangeal joints presented a soft, puffy, fluctuant swelling. The first interphalangeal joints of the middle and ring fingers of both hands presented the same changes to a less degree. All the affected joints were abnormally mobile in all directions, palpation and movement both active and passive being quite painless. The patient was definite that at no time had he experienced any pain in his wrists or hands.

All other joints were normal.

Examination of the central nervous system revealed typical Argyll Robertson pupils with normal fundi. There

FIG. 1.

Photograph of the patient's hands, illustrating the deformity described.

was diminution of sensation to light touch and pinprick in the fourth and fifth dorsal and fourth and fifth lumbar and first sacral segments. Sensation and reflexes were normal in the arms. Both knee-jerks and both ankle-jerks were absent. The plantar responses were flexor.

The blood Wassermann reaction was ++ ("strong positive").

Radiographic report.—"Wrists: Destruction at radio-carpal and radio-ulnar joints, more marked on the right side, with pathological dislocation (Fig. 2). Metacarpo-phalangeal joints: Changes also more marked on the right side with pathological dislocation. Some involvement of interphalangeal joints, especially of ring fingers on both sides. The changes in all the joints are those of Charcot's disease."

Course.—Under antisyphilitic treatment the right knee rapidly improved and there was also diminution in the size of the swelling of the wrist and metacarpo-phalangeal joints.

DISCUSSION.

This case illustrates the possibility of tabetic arthritis of the small joints of the upper extremity, a

FIG. 2.

Radiogram of right hand showing destruction and pathological dislocation of wrist and metacarpo-phalangeal joints.

type of lesion commoner in syringomyelia which can be excluded by the absence of the characteristic sensory changes.

Somewhat similar to Charcot's disease is the chronic arthritis met with in many of the conditions where the nerve-supply to a limb is impaired as the result of central or peripheral disease of the nervous system. Thus it may follow spina bifida, hemi- or para-plegia of central or spinal origin, or may be secondary to peripheral neuritis due to injury, syphilis, gout, diabetes, lead, alcohol, or leprosy. In all of these there would be a characteristic nerve lesion. When the hand or foot is involved it is usually the terminal articulations of the fingers or toes which are affected (acro-arthritis) the joints becoming swollen and painful and later ankylosed.

The atrophic form of rheumatoid arthritis is usually preceded by an acute or exudative stage of which there is no history, there is also as a rule contracture with fixation of the affected joints.

Many authors believe that tabetic arthritis is a form of arthritis deformans. Barth stated that in the latter disease there was always a trophic nerve lesion. Charcot himself ascribed the changes of tabetic arthritis to damage of the trophic nerves supplying the joint, whilst Kienbock, who first distinguished the hypertrophic and atrophic forms of the disease, thought that they were due to fractures which resulted from the complete analgesia and rarefaction of the bone.

Where many small joints of the upper limb are involved, as in the case quoted above, it is more likely that a trophic rather than a traumatic factor is operative, and it is interesting to observe that in tabes dorsalis as well as in syringomyelia, in which diseases a trophic lesion is most probably present, a picture simulating a form of arthritis deformans can be produced.

I am indebted to Dr. Edith Hope and Mr. J. M. B. King for the photographs and report from the radiological department of this hospital, and to Dr. C. Thackray, the medical superintendent, for permission to publish this case.

COINS FROM A CARNIVAL.—Fifty bank clerks were occupied for 12 hours in counting the coins collected for the Birmingham hospitals by university students at the recent carnival.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY.

AT a meeting of this section held on Oct. 23rd, Prof. MAJOR GREENWOOD delivered his presidential address on the

General Register Office.

He ventured to assert that the publications of this curious department between 1850 and 1880 contained more valuable contributions to our knowledge of the theory and practice of vital and medical statistics than had been made by all other contemporary official and private investigators throughout the world. This office illustrated some of the fine virtues of bureaucracy, and also how extraordinarily advantageous jobbery might be, for its enormous success was due to two "jobs." Major Graham had been appointed Registrar-General by his brother, the Home Secretary, and William Farr had been appointed Compiler of Abstracts through the good word of the court physician, Sir James Clarke. Better appointments could not have been made, but both had been "jobs"—and good jobs too. William Farr had been born at Kenley, Shropshire, in 1807, the son of a farm labourer. His parents had entered the service of a retired cab proprietor of Bath, and William had been the old man's pet. His education had been desultory, and in consequence his only choice of a professional career had lain between that of an attorney and that of an apothecary. He had chosen the latter, and during his three years' apprenticeship to Dr. Webster of Shrewsbury he had laid the foundations of that curious unsystematic knowledge which had been a great deal more use to him than Westminster and Trinity would have been. When his benefactor had died and left him a legacy of £500, he had wandered about the continent—instead of acquiring some really impressive letters to add to his name. Not until four years later, when he was 25, had he taken any examination, and that the L.S.A., and a year later he had taken a wife and set up in practice in Grafton-street, Fitzroy-square. He must have had a hard time. He advertised lectures in his private house on "Hygeine" (sic), and two of them had been printed in THE LANCET of 1835–36. That journal also gave evidence (in the form of a letter to the Editor) that he had had at least one patient, and (in the form of a favourable notice of a medical almanac) that he had tried professional journalism. Probably Thomas Wakley had counted for a great deal in Farr's story; he might have introduced him to the notice of Dr. James Clarke, who had employed him to help statistically in the preparation of a book on consumption which had been published in 1835. Two years later Clarke had become physician to the Queen, and a very important person indeed, and it was probably he who had secured Farr's appointment in 1839 as compiler of abstracts in the new General Register Office, at an initial salary of £350 a year.

FARR AT THE REGISTER OFFICE.

Although there was no suggestion that Mr. Farr had any official importance, his hand could be seen from the first. The early reports of the Registrar-General were in the perfectly correct and restrained manner which we were accustomed to associate with blue books, but the fourth of them—the first signed by Major George Graham—contained a reference to the valuable assistance of Mr. Farr, couched in terms which had a temperature slightly above 4° C.—the temperature at which water attained its maximum density, and therefore the proper temperature of strictly official reports. Between the fourth and fifth annual reports some psychological revolution had been effected in the General Register Office. Thereafter, the official interests and literary style of the Registrar-General became very unlike those of most highly placed civil servants, and curiously similar to those of Mr. Farr. Possibly Graham had made an agreement with his subordinate that he should do what he thought proper, while Farr should write what he pleased. The letting loose in this way of an inquisitive, widely read enthusiast, with a flair for the meaning of statistical statements, was a splendid piece of luck. How he had organised our vital statistics and stirred the public conscience was well known, but perhaps his curious little hunts of statistical hares were less well known. A young medical statistician in want of a subject for research would find in the annual reports enough suggestions for a wilderness of theses.

FARR'S SUCCESSORS.

Farr's immediate successor, William Ogle, had had attainments which Farr might have envied. Farr had enjoyed the classics, but could never have fulfilled Macaulay's definition of a scholar: one who could read Plato with his feet on the mantelpiece. Ogle could have done that easily; he had been an exact scholar whose memory would be kept green by Aristotelians rather than by statisticians. Not that he had been an incompetent statistician—he had been the originator of standardised death-rates—but in his time the individuality and quaintness of the office's publications had evaporated. His successor, Tatham, a competent statistician with a wide knowledge of sanitary administration, had not recaptured the spirit of the old days, and a quarter of a century after Farr's death the reports of the General Register Office had completely reverted to the standard official literary style: informative, but certainly not lively. Then had come the epoch, now closing, when Dr. T. H. C. Stevenson had occupied Farr's chair, and the spirit of Farr had been recaptured. Dr. Stevenson's indictments of public health conditions had been more restrained in language but not less deadly in effect than those of Farr. He had hunted fewer hares, but the hares he had hunted had been captured. Like Farr, he had been interested in the people going up and down Camelot whose shadows appeared in the mirror of Shalott set up in the Strand. A reprint of his letters, with the slightest of rearrangements and a few connecting paragraphs, would be a model handbook of medical statistics.

The achievements of Farr and Stevenson had made the continuance of their particular kind of work difficult and perhaps impossible. It was now much more difficult to give an official vital statistician his head, in the way Graham had given Farr his head, because 80 years ago medical statistics had not been taken seriously. Now the news value, the tendencious interpretation, of medical and vital statistics could no longer be ignored. If a choice had to be made between insecure brilliance and safe dullness there could be no doubt in which direction official prudence must point. Nevertheless, Prof. Greenwood was not discouraged. We took a pride, he said, in our national institutions, and the General Register Office was one of our great institutions. Something of the personal

human touch might be wanting, but the memory of that enthusiast from Shropshire, who had been so odd a civil servant and so English a genius, would continue to be honoured, and most of the things he had valued would continue to be valued.

BRITISH ORTHOPÆDIC ASSOCIATION.

THE annual general meeting of this association was held at Newcastle-on-Tyne on Oct. 30th and 31st. Mr. R. C. ELMSLIE presided. The first morning was devoted to discussion and papers, and in the afternoon cases were demonstrated at the Royal Victoria Infirmary.

Mr. H. C. EDWARDS (London) opened a discussion on

Injuries of Muscles and Tendons.

Muscle strains, he said, should be treated by early exercise to avoid adhesions and prevent wasting of the muscle as a whole. Massage was entirely useless. As a general rule ruptured muscles should be sutured in order to allow early exercise and movement. Late operation by fascial implantation where the retracted muscle belly had fully shortened was of no value. After referring to pathological rupture of the long head of the biceps in chronic arthritis of the shoulder, "drummer's rupture" of the extensor longus pollicis, and spontaneous rupture of this tendon following fractures of the lower end of the radius, Mr. Edwards went on to speak of other occupational muscle injuries, including rupture of the tendo Achillis in mountaineers, of the pectoralis major in boxers, of the external oblique in reapers, and the adductor longus in cavalrymen. Abdominal pain, tenderness, and rigidity in rupture of the rectus abdominis was to be distinguished from acute appendicitis. Avulsion of the extensor tendon of the finger (mallet finger) was, he said, best treated by operation. Open wounds of the flexor tendons gave very poor results. Immediate operation in the hospital casualty department was strongly deprecated, not only because the operation was too difficult for any but a very experienced operator, but because the risk of infection was much less after several days' interval. Bunnell's buried suture, and immediate active movements with no immobilisation were essential.

Mr. ROCYN JONES (London) said he had personally sustained a partial rupture of the calf muscles, and had found raising the heel of the shoe to be of no value. Local strapping was beneficial.

Mr. H. PLATT (Manchester) said that the only reliable sign of complete rupture of the tendo Achillis was an abnormal range of dorsiflexion at the ankle-joint. Operative treatment was then necessary. Mallet finger should be treated conservatively by fixation for six weeks. Although the terminal joint required hyperextension, both the other joints should be flexed.

Mr. W. TRETHOWAN (London) had observed the results of treatment by massage and exercises of a complete rupture of the tendo Achillis in a professional dancer who had refused operation. The tendon united with half an inch of lengthening, and although the patient did subsequently dance, she was now much less efficient, and had recently returned asking for operative treatment.

Mr. R. WATSON JONES (Liverpool) said that myositis ossificans at the elbow- and knee-joints was purely traumatic, and due to avulsion of a muscle insertion with periosteum. It was not an inevitable complication, and was curable by suturing the periosteum back to the bone. In cut finger tendons, the suture of the profundus tendon alone was advised. This tendon provided ample power, and if the sublimis tendon was completely cut away, adhesion formation was minimised.

The PRESIDENT (Mr. Elmslie) said that he had never seen a really satisfactory result when a flexor tendon of the finger had been cut below the distal palmar crease. Almost every speaker who had taken part in the discussion was in agreement, and had spoken in very strong terms of the danger of allowing casualty officers to suture cut tendons. The operation was never to be regarded as an emergency. Not only should several days elapse before it was undertaken, but the patient should be admitted to the wards, treated as a major case, and only operated upon by senior surgeons, preferably those accustomed to tendon surgery.

Various Conditions.

Dr. WHATELEY DAVIDSON (Newcastle), speaking of *osteochondritis ischio-pubica*, said that it was a rare condition in which there was limping and pain suggestive of early tuberculosis of the hip with tenderness and swelling over the ischio-pubic ramus. Radiography showed a globular swollen appearance of the cartilaginous junction of the rami of the ischium and the pubis. The condition was thought to be traumatic in origin and analogous to osteochondritis of epiphyses. Symptoms subsided within a few months and the radiographic appearances became normal.

Mr. JOHN GILMOUR (Newcastle) had followed up a series of 87 cases of *tuberculosis of the hip*. Conservative treatment in an abduction frame secured recovery of a limited range of movement in a proportion of cases. A short fibrous ankylosis was a satisfactory end-result, but recurring flexion adduction deformity requiring repeated osteotomies was not infrequent. If the hip became unstable and dislocation or wandering acetabulum threatened, an extra-articular arthrodesis was advised.—Mr. NAUGHTON DUNN (Birmingham) said that multiple osteotomies could be avoided if the child whose hip disease had become quiescent was left without apparatus for six months until the maximum possible deformity had developed before the osteotomy was performed.—Mr. MCCRAE AITKEN (London) advocated non-weight-bearing unloaded movement after the disease was quiescent. This encouraged recalcification of the femoral head and acetabulum and prevented flattening of the bearing surfaces.—Mr. T. P. MURRAY (Liverpool) strongly recommended conservative treatment and said that the majority of adequately treated cases returned to work with a strong stable hip.

The PRESIDENT described seven cases of deposition of *amorphous calcium in the supraspinatus tendon* just above the great tuberosity. This was to be differentiated from fracture of the tuberosity, and from loose bodies in the joint. Very severe pain arose, and excision of the whole sac including the adjacent part of the tendon was advised. Symptoms were completely relieved and did not recur.—Mr. R. OLLERENSHAW (Manchester) reported two similar cases, and Mr. WATSON JONES said that the condition was exactly analogous to calcification of the semilunar cartilages, intervertebral discs, fibrosed lymph glands, and organising blood clot and was due to fibrosis. It occurred in other tendons, notably the tendo Achillis after tenotomy. Occasionally the deposit could be aspirated subcutaneously with complete relief of symptoms.

Mr. WATSON JONES demonstrated a simple portable apparatus by which anatomical reduction of *over-*

riding fractures of the shafts of the tibia and fibula could be secured, which allowed immediate fixation in plaster. Reduction was just as perfect as when an open operation was performed, and all the disadvantages of extension methods were avoided. The complete treatment of a case was illustrated by means of a cinematograph film.

Mr. S. A. S. MALKIN (Nottingham) speaking on *bone grafts and fusion operations for the spine* compared the relative merits of Albee's, Hey Groves's, Gibson's, and Hibb's operations for fusing the spinous processes and laminæ in tuberculosis of the spine. He was in favour of laying a double tibial graft on the laminæ, one on either side of the bases of the spinous processes. Solid bony fusion could be demonstrated radiologically.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of the institution on Oct. 22nd, with Mr. FRANK JEANS, Vice-president, in the chair, a paper on

Carcinoma of the Breast

was read by Mr. PHILIP HAWE. It was based, he said, on a series of cases treated at the David Lewis Northern Hospital, Liverpool. The results were divided into two groups. Of 38 *early* cases, including nine cases not traced, 29 were alive five to ten years after operation, and of 74 *late* cases, including ten cases not traced, 24 were alive five to ten years after operation. Carcinoma in the remaining breast was found in 10 per cent. of the cases surviving operation. One case was quoted in which the patient survived a subsequent pregnancy. Mr. Hawe emphasised the difficulty of distinguishing the so-called fibro-adenoma of chronic mastitis from early carcinoma, and illustrated the same difficulty in connexion with chronic cystic mastitis by describing six cases of malignancy in association with cysts of the breast.

In the discussion which followed, Prof. R. E. KELLY said that all tumours of the breast must be examined microscopically. He did not agree that the breast should be removed entirely in all cystic cases. The operation was not complete enough if cancer was found, and unnecessary should there be no signs of cancer. Mr. J. T. MORRISON took exception to the use of the term fibro-adenoma as indicating a condition likely to be associated with carcinoma. He limited its application to encapsuled simple neoplasms, rarely if ever becoming carcinomatous. Treatment by radium, he said, was still experimental, and its insertion was to be regarded as a major operation. Its value, of course, was great, since even in advanced cases it could be relied upon to produce wonderful local improvement, with corresponding relief of the patient's most distressing symptoms.

Failed Forceps.

Mrs. M. A. DOBBIN CRAWFORD said that the obstetric forceps, used when the signs were favourable, was an instrument of mercy; used in unsuitable cases or at an improper time it was a lethal weapon wherewith thousands of living fœtuses had been killed. To illustrate the frequency of its abuse she had investigated the last 100 cases admitted to the Liverpool Maternity Hospital after attempts to deliver by forceps had failed. The reasons for application were: in 20 cases none discoverable—probably a desire to save time or to save pain; in 64 cases disproportion, the main factors being post-maturity, occipito-posterior position of the vertex, and contracted pelvis. The four rules for the application of forceps had been obeyed in only four of the 100 cases. In 52 cases forceps were contra-indicated, in 44 they had been applied too soon. In 59 cases the patient was in the first stage of labour, the smallest degree of dilatation being a two-finger os. Severe maternal lacerations were present in 40 of these, the uterus having been ruptured in three. In 36 cases the head was free above the brim, in another 34 the head was entering, the largest diameter being still above the brim. The immediate results were that 12 mothers died, the morbidity was 31 per cent., and 62 infants died or were stillborn, while nine of the surviving infants suffered birth injuries. No less than 20 of the mothers were delivered spontaneously after treatment by sedatives and rest.

There were several anomalies in the use of forceps: (1) It is the most common operation in general practice, and the one common operation which many students never see; (2) the excessive force so often applied during the operation is a perfect example of the proverb "out of sight, out of mind"; (3) the appearance of the scalp during pains does not necessarily indicate that the head is on the perineum, or forceps permissible. Having done the midwifery of a general practice for seven years, the speaker was not ignorant of the difficulties of this most exacting and worst-paid branch of medicine. She foresaw little prospect of a decrease in the figures of fœtal and maternal mortality until public opinion comes to recognise the importance of obstetrics, the unreasonableness of expecting one brain and one pair of hands to do the work of two, and the absurdity of expecting every newly qualified doctor to be an expert obstetric surgeon. The time allowed for practical midwifery in the medical curriculum was far too short, being adequate only for the student who is determined to undertake no obstetrical work after he is qualified.

Dr. GLYNN WHITTLE, in the subsequent discussion, agreed that teaching authorities should require improved and extended clinical instruction in midwifery. It would doubtless be advantageous to expectant mothers if all doctors on commencing practice either devoted themselves seriously to obstetric work, or declined midwifery altogether.

Mr. PERCY MALPAS thought Mrs. Crawford's paper very significant, especially as regards the need for reconsideration of the diagnosis whenever forceps have failed once. The major difficulty in the treatment in hospital later of these cases was that the forceps had been repeatedly applied, so that apart from trauma and infection, the whole mechanism of the labour was disturbed, and any subsequent treatment, either active or passive, was often doomed to failure. The facts of the whole paper could not be too widely appreciated.

Dr. S. B. HERD spoke of the frequency with which instrumental delivery fails although a patient has had all her previous children born without help. That type of case usually resulted from a condition of either post-maturity or weakness of the uterine muscle—or both together. Contracted outlet of the pelvis (funnel-shaped pelvis) might result in failure to deliver with forceps even when the head had reached the perineum.

BLOOD TRANSFUSION IN HÆMOPHILIA.—In a discussion at the Medical Society of London reported last week (p. 964), Dr. H. Letheby Tidy is made to say "there was no need to perform blood grouping in hæmophilia." What he actually said was that "citrated plasma is effective in hæmophilia, and for this there is no need to perform blood grouping." If whole blood or citrated blood is used, he adds, blood grouping has to be performed with the usual care.

REVIEWS AND NOTICES OF BOOKS

A Manual of Embryology.

By J. ERNEST FRAZER, F.R.C.S. Eng., Professor of Anatomy in the University of London (St. Mary's Hospital Medical School). London: Baillière, Tindall and Cox. 1931. Pp. 486. 30*s*.

BRITISH anatomists in particular will welcome Prof. Frazer's account of the development of the human body, the outcome of 25 years of devoted work in this field. The account is written from a frankly personal and human (as opposed to comparative) standpoint, and we would not have it otherwise. The author in his preface takes full responsibility for descriptions in the text which diverge from conventional lines; since such divergence is not always signposted, its recognition presupposes some knowledge of the subject on the part of the reader. But the latter is unlikely to be led far astray. The work is impressive in the careful accuracy of statement which, departing from facile convention, seeks to present the thing as it is, rather than as it is traditionally accepted. Only occasionally may the lack of reference to the work of others be felt to be a real omission—e.g., in connexion with the development of the meninges.

The general arrangement of the book is on novel lines. As far as possible a regional presentation has been adopted "to give the student some sort of connected mental picture of the developing embryo, rather than a patchy series of discrete descriptions of the formation of organs." Prof. Frazer deserves congratulation on his remarkably successful pursuit of this ideal. To read his account is to obtain a picture of the growth of the body in the correlated development of its component parts. A student looking for easily acquired potted information, wherewith to respond to developmental "tags" at the end of examination questions, is likely to be disappointed with this book; but that is the fault of unsatisfactory methods of teaching and examining which, it may be hoped, this book will help to make obsolete. Prof. Frazer regrets the necessity for drastic pruning of detail. The pruning indeed is in some places excessive. Certain matters of detail are left out altogether—e.g., the conducting system of the heart. In the account of the development of the heart, the sinus venosus is merely named; the reader is left in ignorance of its formation and tributaries unless he happens to remember the legend to a figure (Fig. 35) appearing much earlier in the book. The omission of reference to developmental abnormalities will disappoint medical readers, unless the absence of this section leads them to hope for a companion volume on Developmental Pathology. There are remarkably few misprints. On p. 8 the formula $\frac{x}{2} + 1$ should be $\frac{x}{2}$, and $\frac{x+1}{2}$ should read $\frac{x}{2} + 1$; on p. 19 the label UC is used for two different things in the two parts of Fig. 7, while only one meaning is given in the legend; "hind-brain" in line 12 on p. 161 should surely be "mid-brain."

The senior student and the teacher will find in this book enjoyment, information, and inspiration. Above all it will be useful to the serious student of embryology as a guide to the direct study of human embryos. Few anatomists in this country have the thorough personal knowledge of human development required for the writing of such a book. One of them has produced a work which will worthily uphold the prestige of British embryology.

Human Heredity.

By ERWIN BAUR, EUGEN FISCHER, and FRITZ LENZ. Translated from the German by EDEN and CEDAR PAUL. London: George Allen and Unwin, Ltd. 1931. Pp. 734. 30*s*.

UNTIL the appearance in 1929 of Prof. R. Gates's book "Heredity in Man," there was no epitome available in English of the many researches into human genetics which, since the war, have been vigorously prosecuted on the continent of Europe and in America. Now we have also the translation of a standard work in German on human heredity which, while not claiming to be exhaustive, contains references to most of the important papers which have appeared up to the year 1927. The volume consists of five sections. The first, by Dr. Erwin Baur, outlines the general theory of variation and inheritance, expounding in the process the chromosome theory at somewhat greater length than is necessary for the understanding of the known facts of human heredity. The section by Dr. Fischer, dealing with the racial differences in mankind, will be of greater interest to the anthropologist than to the medical man. The last three sections, concerned with Morbific Hereditary Factors, Methodology, and the Inheritance of Intellectual Gifts, are all written by Dr. Fritz Lenz, and occupy about two-thirds of the book. Of these last three sections, the first mentioned has the greatest medical interest. Here are set forth, in over 200 pages and under 11 headings, a number of valuable pedigrees in which is epitomised most of what is known of the inheritance of the various human defects, diseases, and diatheses. This section will doubtless prove useful to students of pathological heredity, both for its direct information and for its numerous references to the more detailed literature.

Despite the care with which it has been compiled and the vast amount of information it contains, the book has several disadvantages for any reader who, in a given case, wishes to form an opinion on the advisability of parenthood. Dr. Lenz is professor of Racial Hygiene at the University of Munich. His descriptions of diseases, which fill a considerable bulk of the third section, are obviously not those of a man who has himself observed their characteristics and courses and they will enlighten neither the medical nor the lay reader. In the section on methodology the word "carrier" is indiscriminately used to denote both the person who, while not manifesting it himself, carries a disease in genetically latent form, and the person who exhibits a disease. As a result much of this section is unintelligible, and the reader is oppressed by the suspicion that the translators may not have grasped the true meaning of their original text. Lastly, the index of the book is so planned that names of the specific diseases, instead of appearing in their expected alphabetical places, are included under vague, comprehensive titles in such a way that their discovery is not easy. Thus "brachydactily" is not found in its expected place; it is found under the general heading of "malformations," together with such diverse entities as "teeth, tower skull, and twins," which by no means obviously exhibit the common characteristics of being malformations. In his approach to racial psychology, Prof. Lenz leaves the solid earth of observed fact, his treatment of the subject almost suggesting that his chief aim is to justify the proposition that "in respect of mental gifts the Nordic race marches in the van of mankind."

The material of this book is simultaneously expounded by the scrupulously inductive method of the geneticist and by the statistical method of the mathematician; it is also surveyed from the synoptic if misty standpoint of an exponent of racial hygiene who thinks that one particular race is superior to all others. In these various approaches, the predicament of the medical man, confronted with the practical question of how to advise his patients about parenthood, is somewhat lost sight of. The reader genuinely interested in human genetics will, however, discover in it much valuable information.

Recent Advances in Allergy.

By G. W. BRAY, M.B., Ch.M. London: J. and A. Churchill. 1931. Pp. 432. 12*s*. 6*d*.

THIS volume is an admirable addition to the "recent advances" series. Dr. Bray has had very valuable opportunities for the study of allergy, and of asthma in particular, as research scholar at the Hospital for Sick Children, Great Ormond-street. In this book he has presented a full summary of all the recent important work on this growing subject, as well as some of his own work on several aspects of it. Our knowledge of allergy has increased rapidly in recent years.

In this book the first 156 pages are occupied with a general discussion of the problems concerned in allergy such as heredity, climate, and the influence of psychic, endocrine, and toxic factors. Some 40 pages are devoted to asthma, including its causation, pathology, and treatment, and about half this number to hay-fever. Other conditions which are discussed include urticaria, eczema, migraine, epilepsy, serum sickness, and muco-membranous colic. Food allergy is a problem which must interest every practising physician. The most varied symptoms are thought to be due to the ingestion of common articles of diet such as egg, milk, wheat, and the like; the failure of skin reactions affords no proof that food sensitisation is not the cause of symptoms.

This book offers a full review of the literature with many references and will provide a new field of interest to many.

Robert and Clive.

"*The Story of a Surgeon.*" By CLAIR COPE. London: John Bale, Sons and Danielsson. 1931. Pp. 168. 6*s*.

A PSEUDONYMOUS medical man has put together here in simple and well-chosen language a group of stories which are well worth reading. Each has as its motif some puzzling situation in which the doctor, belonging to this or that category of the profession, may find himself, and for the most part, the happenings are not far-fetched. One story contrasts the effects of resistance and "flop" in the face of a great grief; two other stories set out the medical situations which have to be met by the doctor in the cases of the patient who is not really ill and the patient who is much worse than is apparent. A well-written illustration of the folly of being wise shows the miserable apprehensions of a surgeon who, having wounded himself in the course of operating on a highly septic subject, interprets certain symptoms due to a transient catarrh as the commencement of fatal septicæmia. Sometimes in the desire to round off a story the probability is strained, but Clair Cope is either a sufficiently practised writer or a sufficiently observant reader to see that many a story gains its force by withholding the actual issue of events, leaving the reader to terminate them as he wills. The episode of a doctor who has to perform an emergency operation on his own child, and that of the anæsthetist who manages to prevent the undue prolongation of operative procedures, both show a close appreciation of the interplay of sentiment and duty upon action. The penultimate love-story is delicate, and the final criticisms of hospital administration will appeal to all reformers.

The stories contain much sound wisdom, and if many of them are thoroughly sentimental, none is mawkish. For the most part they depict the virtues of various practitioners, which are self-rewarded; the existence of black sheep is noted but their punishment is not.

Your Servant the Doctor.

By G.P. (W. B. COSENS). London: John Bale, Sons and Danielsson, Ltd. 1931. Pp. 192. 7*s*. 6*d*.

THIS is a book to read in rather than to read through. It should stand in the little shelf where doctors, like other professional people, keep books they want to lay hands on from time to time; and even if after a month or two it gets replaced by a newcomer, it is likely to have a second promotion. "G.P." has much to say: what we think of it depends upon our individual mental make-up. Some of his reflections are of course the outcome of his own personality and experience and these, though interesting, are of minor importance, but here and there he goes deeper and touches rock bottom, probing the universal mind. These deeper probings may be less acceptable than the more superficial anecdotes, pleadings, and judgments of which the book is full; but we are glad that it is on an early page that he really speaks truth to those who are prepared to listen. He unmasks the jealousy that pervades some sections of the profession, after commenting upon the calls that doctors' wives feel impelled to make upon prospective patients. This passage of his book will arouse the indignant denial the author anticipates, or a pained acquiescence, according to the psychology of the reader. Chapters are included on the night-bell, on medical education, on specialists, fees, and panel practice. The general practitioner is held to be interested, and certainly becomes interested, in subjects as widely separate as heredity, domestic troubles, religion and politics, dress, sex-equality, and village tittle-tattle. All doctors will find something to appeal to them in this charming collection of medical experiences.

Thou Shalt Not Kill.

By G. CLEMENT, M.D., Chief Surgeon at the Cantonal Hospital, Fribourg. Edinburgh: E. and S. Livingstone. 1931. Pp. 152. 6*s*.

THIS pamphlet, an authorised translation from the fourth French edition, is a vehement statement against abortion. The author does not attempt to be impartial, but is wholeheartedly against abortion in any circumstances, and has brought a high degree of experience, knowledge, and skill in pleading to the construction of a formidable case. He examines all the recognised therapeutic indications and dismisses each one in turn; he invokes religious, moral, and ethical sanctions, some of doubtful validity and some bordering on the crudely sentimental, to reinforce the emotional side of his appeal. Readers in search of a frankly ex-parte statement will find this side of the case argued with great force and completeness, and very well documented; but it is doubtful whether the practitioner who is really seeking a solution of this most difficult problem will find the work of any assistance to him.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 7, 1931.

THE NEW PARLIAMENTARY SESSION.

PARLIAMENT reassembles in unaccustomed conditions. Opposition being negligible, any measure proposed by the Government can be passed almost without challenge, though many a Bill is all the better for vigorous hammering upon the anvil of Parliamentary discussion. Fiscal and currency proposals were to be expected. The statute of Westminster must be passed to give formal recognition to the status of the self-governing Dominions. An Expiring Laws Act is wanted before the end of the year. Otherwise we may expect a respite from law-making; there is no "pledge" legislation in prospect. Ministers will have more time for the administration of their departments. Many desirable developments in health matters do not require fresh Acts of Parliament, but merely depend upon financial sanction. Will the new Chancellor of the Exchequer always say "No"? The heaviest task of the Minister of Health will be to ensure that economies practised by central and local authorities do not interfere with the necessities of public health. In the new session private Members' Bills will have unusual opportunities, though much of the time of the House of Commons between now and next summer must inevitably be occupied with estimates and the financial stages which lead up to the Budget itself.

What are the prospects of a new Factory Act at last? Here recent history is reproachful reading. Proposals for the amendment and consolidation of the Factory and Workshop Acts appeared in the King's Speech in 1924, 1925, and 1930. The Home Office actually produced its Bill in the autumn of 1926. The Labour Party's Bills for the same purpose were produced in 1924, 1926, and 1927; but all alike dropped dead. Private Members' Bills to prohibit night work in bakehouses met a like fate in 1922 and 1923. Indeed the restriction on lead paint in 1926 and the fresh regulation of cotton cloth factories in 1929 are the only enactments of this nature to the credit of the Home Office in the last ten years. Trade, it will be said, is not to be hampered by fresh legislation at this critical time. But are there no non-controversial improvements of the law, no agreed provisions ripe for Parliamentary sanction?

At least we may hope for some amelioration of the form of the statute book in matters which affect busy officials and the hundreds of unpaid volunteers in the sphere of local government. The tangle of unemployment insurance is bad enough even where the principal statute is of post-war date. Public health and local government are based on Acts largely passed in the last century. The final report of the Onslow Commission on local government emphasises the number and complexity of the statutory provisions—the Public Health Acts of 1875, 1890, 1907, and 1925, the Municipal Corporations Act of 1882, and the Local Government Acts of 1888, 1894, and 1929. This accumulation, says the Commission, "has in our view reached a point at which it is imperative that consolidation should be undertaken." A Committee is understood to have this matter in hand. Let us hope that they will move more swiftly than the body which began the simplification of income-tax law so many years ago. One final suggestion, worth remembering in connexion with public health, would promote economy as well as reform. Every year our progressive municipalities and other local authorities have to purchase improved facilities at great cost by promoting local Acts. The 1930 report of the Select Committee on Local Legislation recommended that the clauses accepted in Bills during each of the last five sessions should now be gathered up in a new adoptive Public Health Bill which "should be introduced without delay." This, in the Committee's opinion, would save much time and money to local authorities. Here, at any rate, is one definite task for the new Parliament.

HEREDITARY OPTIC ATROPHY.

IN a volume [1] recently issued from the Eugenics Laboratory Dr. JULIA BELL gives 240 pedigrees of Leber's disease covering 1182 affected individuals, and from these data draws certain conclusions. The pedigrees show that, though the male sex-incidence of the disease is predominant it is not absolute, as is thought to be the case with hæmophilia. Among Europeans affected the relative proportion of the two sexes was 863 males to 155 females, but among the Japanese there was a far greater approach to equality, 97 males to 67 females. No explanation of this contrast between Europe and Japan is forthcoming. As to the age of onset, the usual age is between 20 and 25, but the mean was slightly higher for Europeans than for Japanese in the case of both males and females. As to the clinical signs of the disease, the presence or absence of a central scotoma and of peripheral contraction of the fields is given in percentages. Other figures concern the course and prognosis of the disease, the proportion of cases showing no improvement over a period of years, and the smaller proportion showing improvement, including 12 cases of complete recovery of vision. In his Bowman lecture of 1909 NETTLESHIP [2] expressed his opinion that the chance of recovery is often put too low; we may speak hopefully, he says, of any case seen within a couple of years of onset, and he gives records of 25 good recoveries. The most important part of Dr. BELL'S summary deals with the hereditary character of the disease and

[1] Hereditary Optic Atrophy (Leber's Disease). By Julia Bell, M.A., M.R.C.P. Part IV. of the Nettleship Memorial Volume on Anomalies and Diseases of the Eye. Eugenics Laboratory Memoirs XXVI. London: Cambridge University Press. 1931. Pp. 99 and 16 plates. 36s.

[2] Trans. Ophth. Soc., 1909, xxix., 110.

its mode of transmission. The belief that though males are predominantly affected they never transmit the disease directly has been doubted, but is supported by the evidence here collected, not as an unvarying fact, but as one very nearly always holding good. Exceptionally, however, it is proved that the father is able to transmit the disease either directly, or indirectly through his daughters to his grandchildren. What the conditions are which render this possible is obscure, but it is suggested that it depends on some linked factor inherited with the disease. It is so exceptional that Dr. BELL hazards the opinion that if the sisters of affected males refrained from parentage the disease would be almost exterminated. In support of this she states that of 573 affected males no fewer than 95 per cent. owed their affection to the mother, and of 88 affected females, 84 per cent. owed their affection similarly to the mother. A similar proportion was found in the Japanese cases in spite of the difference before mentioned in the sex-incidence.

There are other diseases which are inherited more commonly through the mother than the father—retinitis pigmentosa is one—but in no other case is the predominance of inheritance through an unaffected mother so much the rule as in Leber's disease. Consanguinity of the parents in Leber's disease is seldom found. NETTLESHIP stated in the lecture quoted that the only case in which a cousin marriage increases the risk is where the man is affected with the disease and his cousin wife carries it latent. Dr. BELL pays a tribute to NETTLESHIP'S work, but truly says that the available material has so markedly increased since he wrote that she deemed it best to make an entirely independent analysis. Indeed, the available material for testing the applicability of MENDEL'S theories to this disease continues to increase, but the problem does not admit of a simple solution. At the spring meeting of the Ophthalmological Society Dr. W. RITCHIE RUSSELL produced a pedigree of Leber's disease (reproduced on p. 1018 of our present issue), in which three brothers and their second cousin (male) were all affected, but no instance of the disease was known to have occurred in the three previous generations. The parents of the three brothers were second cousins. The fact of the appearance of the disease in another member of the same stock made it probable that it was inherited from a common ancestor. According to the theory of sex-linked inheritance, the factor causing Leber's disease is a recessive character becoming manifest only in males, whereas the power of transmitting the disease may reside in females not themselves affected. If this theory were strictly applicable one would expect that there would have been instances of the disease among the men of the previous generations of the affected families, and that more than two of the women in the affected stock would have transmitted it to their sons. Such, however, was not the case. Dr. RUSSELL'S suggested explanation is that Leber's disease depends on an inherited tissue vulnerability, that the tendency may be counteracted in an exceptionally healthy stock, and that in the instance he quotes the consanguinity of the parents acted as an unfavourable influence which allowed the tendency to disease to become manifest.

Apparently still more disconcerting to the accepted theory of Leber's disease is a pedigree published [3] last year by Dr. A. A. MUSSEN, medical officer to the Liverpool education committee. This pedigree shows no less than 33 descendants of one man affected with the disease. It was by no means confined to the males, but appeared in equal proportions in the two sexes (17 males and 16 females). Moreover, whereas by the accepted theory an affected father is incapable of transmitting the disease unless the mother also is a carrier, in this pedigree out of 19 children of affected males no less than 14 were affected. The facts of this pedigree are in direct conflict with the theory that Leber's disease depends always on a sex-linked transmission in which the factor causing it is recessive. In this instance it was obviously dominant—i.e., the single sex-chromosome of the father, bearing the Leber's factor, on meeting the two sex chromosomes of the mother—free from Leber—instead of retiring and becoming extinct as it would do if the Leber factor were recessive, became dominant. Such is obviously the explanation of this apparently anomalous pedigree. It has been recognised by previous writers that the tendency of the Leber factor to become dominant, though not common may exist, and it has been said that this tendency varies in different races. The Liverpool pedigree therefore is not typical of the common form of Leber's disease. It differs from it not only in the mode of hereditary transmission but also in the fact that the affected individuals were all children of school age, whereas in the great majority of pedigrees that have been collected the affected individuals have had normal eyesight until early adult life. Cases are not unknown of congenital optic atrophy occurring in families, and in the opinion of NETTLESHIP these cases are true Leber's disease, setting in very early in life, or perhaps sometimes before birth. It would be of interest to determine whether in these families the factor carrying blindness is transmitted in the dominant or the recessive way. Meantime we may have to suspend judgment as to the prognosis with regard to heredity in individual cases.

A SEX-LIMITED SPECIALTY.

IN his Bradshaw lecture delivered on Tuesday before the Royal College of Physicians of London, which is printed at the front of our present issue, Dr. FAIRBAIRN deals with fundamental problems as old as the art of medicine and yet strangely far from solution. What is the causation of the mass of ailments presented to the gynæcologist? Are they the result of physical deviations from the normal, in respect of structure or metabolism?

[3] Report of the School Medical Service for the year 1929. Published for the Education Authority, 14, Sir Thomas-street, Liverpool, 1930, p. 12.

Are they due to mental causes and should they be interpreted as expressions of psychic conflict, or revolt against the primal lot of woman? How far will preventive medicine in its attempt to mitigate the natural pains of labour actually increase our problems? Following in the line of thought suggested by CLIFFORD ALLBUTT, MATTHEWS DUNCAN, and, later, Dr. ROBERT HUTCHISON, the Bradshaw lecturer had no difficulty in showing how progress is hindered by too exclusive an adherence to a mechanical explanation of symptoms, and too narrow a view of the gynæcological field. Advances in surgery and pathology have done less than might have been hoped to relieve the situation, for pessaries have been replaced by 'pexies, and the operations to which the patient is subjected have become more varied and numerous. Although this phase also is passing, Dr. FAIRBAIRN thinks that too much weight is still attached to minor defects of the pelvic organs, and the unnecessary operation, with its necessary sequel of the uncured patient, is not yet a thing of the past. Real progress lies in pressing on the movement already well begun for linking up gynæcology with her "ancient mother" obstetrics and with her sister specialties of general medicine and surgery. Much of the gynæcologists' difficulty he recognises as due to the fact that by the nature of his calling he rarely sees the sexually normal woman, and has little chance of establishing by scientific observation what deviations from normal structure are consistent with good general health and easy performance of sex functions. A gleam of hope comes from the field of preventive medicine. Intelligent use of antenatal and postnatal clinics as a field for research should provide opportunity for obtaining this information. The experience of these clinics may incidentally throw light on the rôle played by chronic uterine sepsis in producing invalidism in women.

Of equal or greater importance for the future is the recognition of the part played by mental processes in producing or augmenting symptoms referred to the reproductive system. This is a truth which needs restating with every advance in scientific knowledge; for the balance between the parts played by the mind and body in disease is always a delicate one, difficult to determine and easily obscured by enthusiasm for any new form of treatment. Dr. FAIRBAIRN frankly admits that in three widely differing fields—dysmenorrhœa, dyspareunia and vaginismus, and the vomiting of pregnancy—modern therapeutics owes more to intelligent application of psychotherapy than to pure gynæcology or obstetrics. Similar help, he suggests, might be gained from psychology in the treatment of that baffling group of ill-defined ailments now referred to the uterine displacements and enteroptoses. He points to the static condition of the maternal mortality-rate, and more especially to its strange tendency to remain higher in the richer than in the poorer districts of great towns, and asks whether the true explanation does not lie in the mentality of the women themselves. The modern woman's reluctance to have children and her demand, if she does, to have the pains of labour shortened by forceps or full anæsthesia, in the long run adds to the very risks she is trying to avoid. There is no need to look for any sex-linked distinction in the constitutions of men and women to account for these well-known facts. Granted that the influence of mind, conscious and unconscious, over the body is a universal human phenomenon, and that the sensitiveness of their interaction tends to increase with the development of mental powers, it is surely inevitable that civilised women should tend to exhibit many and diverse unconscious defence mechanisms against reproduction. For the woman sex means risk, pain, and, sadly often, death, even as war does for the male. The history of war neuroses, miscalled shell-shock, shows that the male constitution has little to learn from the female in the way of evading unpleasant hazards.

The reason why psychology, or psychotherapy as it is more properly called, has failed so frequently in the past to give the help expected of it must be faced if Dr. FAIRBAIRN'S reasonable expectations are to be fulfilled. Too often the neurotic woman has been confronted with a mere assurance that there is nothing the matter with her—which is not true; or an exhortation to get well by her own efforts—which is impossible. Psychotherapy should mean constructive treatment based on a skilled and patient investigation of the woman's mental condition, or it is likely to be as useless as the pessaries and 'pexies of the past. It should further be conducted in close association with the gynæcologist and general physician and surgeon; for there is often some physical basis for the neurosis, from which the patient is entitled to obtain relief. Indeed, a genuine effort to relieve all unnecessary pain, fatigue, and suffering should form a large part of the therapeutic picture. Not least of the factors which have contributed to the present unsatisfactory situation is the attitude of many practitioners that the relief of the pain and discomforts of childbearing is outside their sphere. There is surely much that may yet legitimately be done to mitigate the lot of the poor mother. The test of so-called humanitarian interference with labour should be whether it hinders the work of nature or helps. There is much evidence that skilled use of analgesics and light anæsthesia actually promotes normal labour, and leaves the woman better able to perform her task of child-rearing and to confront the prospect of another labour courageously. The humanitarian use of forceps is another story. Finally, it should be clear that the woman neurotic patient needs clear guidance and moral support if she is to be successfully helped in confronting the realities of life. Unless the psychotherapist has a clear conception of the goal to which he is leading his patient, psychological treatment becomes mere prattling, and the woman retreats more securely behind her defences, and will remain a gynæcological or obstetrical problem. Nor is she likely to surrender to an acceptance of normal obligations, sexual or merely domestic, if her husband and public opinion support her evasions.

ANNOTATIONS

AN EXPERIMENT IN PUBLIC HEALTH ORGANISATION.

IN 1922 the Milbank Memorial Fund selected Cattaraugus county in New York State as a representative rural area to take part in a demonstration of the effect of concerted measures for the improvement of the public health. Accordingly they supplemented with a liberal hand the funds provided by the State and county administrations, and the new programme was launched in 1923. Since then a comprehensive public health organisation has been developed in the county, and it has been thought desirable to make an attempt to ascertain whether it has justified itself. To this end the technical board of the Fund asked Prof. Winslow to undertake a survey of the scheme and to comment on its results. He has now published his report,[1] in the preparation of which he has had the help of a band of collaborators. Cattaraugus county has an area of approximately 860,000 acres (about the size of Wiltshire), and a population of 72,649 persons (roughly the population of Westmorland). The scheme elaborated by the joint efforts of the Fund, the State and the county comprises those provisions which are regarded on both sides of the Atlantic as essential to a complete public health service—viz., sanitary supervision and surveillance of food traders, control of acute communicable disease, care of mothers and children, inspection and treatment of school-children, domiciliary and institutional care of the tuberculous, prevention and treatment of venereal diseases, laboratory service, clinics for mental disease and defect, clinics and beds for cripples, nursing in the home, and public education in matters pertaining to health. For these purposes, staff and premises had to be obtained, voluntary bodies had to be utilised and encouraged to extend their activities and the coöperation of the private practitioner had to be sought. Some idea of the scope of the activities of the scheme may be gathered from the financial outlay, which reached in 1929 $160,000, equivalent to $2.20 per head of the population, or roughly (with sterling at par) 8*s*. 6*d*., which is rather more than many large progressive towns in this country expend on the corresponding services.

In trying to estimate the gain to the community of this intensive public health effort, Prof. Winslow admits at the outset that the period of the experiment is too short to provide a high standard of reliability, and that the difficulty is intensified by the absence of accurate controls for the comparison of social trends. The statistical department of the Milbank Fund, however, have made a careful study of death-rates in the county before and since the inception of the scheme, more especially from diphtheria, tuberculosis, and those causes in infancy which are not congenital, and have arrived at the conclusion that there has been a significant decline, as compared with the rates in reasonably similar areas. They estimate that during the period of the demonstration there has been a yearly saving of 14 lives from tuberculosis, 20 from diseases of infancy, and four from diphtheria, a total of 38. Taking the value of a young adult life as $12,000 and of an infant's as $5000, Prof. Winslow computes the financial gain from this saving of life alone, apart from the many other advantages in the way of improved health in the community, at $300,000 per annum, or nearly twice the cost of the programme. In view of the problem of unemployment, in America as in this country, the validity of this monetary way of measuring a life's worth is open to question; the benefit to the community of saving lives and avoiding disease can hardly be calculated mathematically.

In this country there has been much greater uniformity of public health progress than over the water, and it is correspondingly more difficult to decide how much of our improvement in health is due to ad hoc administrative effort. The carefully studied experiences of Cattaraugus county are therefore of great interest, and Prof. Winslow's conclusions ought to hearten our sanitary authorities and their officers. It will possibly comfort the older school of British sanitarians to read in an American publication that "experience in Cattaraugus county has shown that sanitation cannot wisely be minimised in a county health programme." It is disappointing to learn that those responsible for administering the new services were not entirely successful in gaining the confidence and coöperation of the organised medical profession in the county.

[1] Health on the Farm and in the Village. By C. E. A. Winslow, D.P.H., Professor of Public Health, Yale School of Medicine. London: Macmillan and Co. Ltd. 1931. Pp. 281. 5*s*.

MENTAL TESTS: THEIR USE AND ABUSE.

IN a short article in *Mental Welfare*, the quarterly organ of the Central Association for Mental Welfare, Dr. A. Carleton Williams, one of the divisional medical officers of London County Council, makes a useful contribution to the literature of mental tests. Defending their use against the criticisms of some authorities, he claims for such tests in the diagnosis of mental defect a value analogous to that of the stethoscope in chest diseases. It is true of course that social inefficiency is the ultimate criterion of mental defect, and that it is best evidenced in what is called behaviour or conduct; but the examiner only too often has to rely on others for his knowledge of that behaviour, he can make no first-hand observations of it. Moreover, in certifying he has to record facts "observed by himself," and it is here that a comprehensive scale of tests gives the examiner ample material to judge the examinee's powers of perception, memory, and reasoning, not merely by actual results but by the quality and manner of response. Even the much despised mental ratio has its value, as it gives a certain exactness to the diagnosis which the mere words "imbecile" or "feeble-minded" fail to convey. To diagnose mental or even moral defect on the mere occurrence of immoral behaviour is, as Dr. Williams suggests, to run the risk of gross error. He discusses certain observed differences, qualitative rather than quantitative, in the types of response of defectives as compared with normals. Those that he quotes illustrate chiefly the purely mechanical or rote-like mentality of the defective, and his relative incapacity to rearrange or apply or reason about such parrot knowledge as he acquires. Dr. Williams stresses the special value of tests involving reasoning and those of a non-verbal character, and very properly insists on the special care necessary in cases where tests reveal a relatively good general intelligence but conduct is unbalanced and uncontrolled. Such cases are the bugbear of even the experienced examiner, but even here, carefully selected tests may prove

illuminating. In conclusion, Dr. Williams emphasises the necessity for careful judgment in the use of tests, and careful interpretation of the responses based upon medical and psychological knowledge. The article is full of points of interest to all mental testers but it might with advantage have been amplified by the inclusion of more concrete detail.

PROPHYLACTIC PLASMOQUINE ON A TEA ESTATE.

Lt.-Col. W. W. Clemesha and Dr. J. H. Moore, after collaborating for six years in anti-malaria measures on the Travancore Tea Companies' estates, have reported [1] what they believe to be the first attempt to use plasmoquine for the eradication of malaria from a community. Travancore is a prosperous Native state on the Malabar shore of India between the latitudes 7°–9° N. and includes a range of hills known as the Western Ghauts rising to a height of 6000 ft. or so, on the slopes of which tea is grown between the 2400–4000 ft. contours. Between are ravines and mountain valleys which are inclined to be malarious. The period of maximum anopheline activity and of malarial infectivity begins about the middle of March and lasts until June when the rains break. Measures were concentrated on the extremely unhealthy Periyar Valley, 2500 ft. above sea-level, where the writers were fortunate enough to have as control two native estates on which no antilarval measures had ever been carried out. The investigation began in May, 1925, when the output of work was frequently as low as 25 per cent. for weeks together, and the cases were all of malignant tertian. Arrangements were made for a vigorous campaign in the malaria season of 1926. These measures were on the following lines. If it were possible to cure all gametocyte carriers in any community malaria would disappear, it being immaterial how many anophelines there were. Manifestly the only correct method of stopping reinfections is to procure the maximum reduction in the number of anophelines and the maximum reduction in the number of gametocyte carriers. If conditions are favourable for an 80–90 per cent. reduction in the number of gametocyte carriers and a 66–75 per cent. reduction in the number of dangerous anophelines, there should be few reinfections of malaria. In pre-plasmoquine days the reduction in the number of gametocyte carriers was very difficult; now it is comparatively easy. The Oriental, particularly the Tamil cooly, is much more susceptible to drugs than is the European, but plasmoquine compound is harmless compared with pure plasmoquine. In every patient who sickened with malaria the following procedure was adopted :—

Stage 1.—Whilst the patient is febrile, either cinchona febrifuge tablets or Major Sinton's alkaline quinine treatment was given, in addition to one tablet of plasmoquine, a total for the week of grs. 105 of cinchona febrifuge plus 0·07 g. plasmoquine.

Stage 2.—Two tonic pills a day for one week.

Stage 3.—The first week's treatment is repeated making a total amount of grs. 210 of febrifuge and 0·14 g. plasmoquine. This constitutes a three weeks' anti-gametocyte treatment, which not only achieves its main object, but also prevents relapses. For children who are quartan gametocyte carriers small doses of pure plasmoquine are added to the euquinine and milk treatment on two days a week.

Col. Clemesha and Dr. Moore consider that with these two weapons—namely, the anti-gametocyte after-treatment for adults, and the euquinine and milk treatment for children—it has become possible to make an onslaught on gametocyte carriers up to 95 per cent. of success. This they have proved by taking blood slides at various periods, a malarial register being kept on the estate with a record of thick films stained by Giemsa. On examination of 95 coolies known to have suffered from malarial relapses, 45 per cent. had no parasites in their blood, in 20 per cent. the blood corpuscles showed signs of basophilic stippling, and in 35 per cent. parasites were found, benign tertian predominating. The results of the pre-plasmoquine period have been compared with the plasmoquine period. In the autumn of 1928, 73 per cent. of slides were positive and 51 of these contained gametocytes. In the period November, 1929, to June, 1930, of the 120 slides examined in the non-malarial season, 7 per cent. only were positive and there were no gametocytes; whilst in the malaria season during the same period out of 116 slides 56 per cent. were positive and 3 per cent. contained gametocytes. The writers consider that these figures go to show: (1) the efficacy of plasmoquine compound in removing gametocytes from the blood and in preventing relapses, and (2) the influence of this gametocyte removal upon the incidence of disease. For during the malaria season of 1930, malaria practically ceased to exist and regular prophylactic dosing of children was discontinued.

[1] Reprint from Indian Medical Gazette, 1930, lxv., 671.

SPASM OF THE GASTRO-INTESTINAL TRACT

Dr. A. J. Beams has made a series of observations on the action of certain antispasmodic drugs on the motility of the human stomach and intestine.[1] In 95 per cent. of 200 subjects examined, X rays showed cessation of peristalsis and diminution of tone after administration of nitrites. A similar effect was seen in dogs, in which the isolated segments of gut were found to be depressed through a direct action upon the intestine itself. The effect of antispasmodic drugs was then tested upon certain spastic conditions of the alimentary tract such as cardiospasm, pyloric spasm, and colon spasm. Eighty-three patients in all were examined. The drug to be tried was administered during the radiographic examination and the results were compared. Of five patients suffering from cardiospasm, only two showed any relaxation with either atropine or nitrites. In pyloric spasm, atropine and nitrites were about equally effective, though about half the cases failed to respond to either drug. In colon spasm the nitrites proved their superiority, for of 30 patients treated with sodium nitrite 22 showed a relaxation of spasm; whereas of 24 treated with belladonna, only 13 gave an appreciable response. Thus these results indicate that nitrites have a greater antispasmodic influence over the colon than over the cardia or the pylorus. Beams goes on to suggest that the use of amyl and sodium nitrite may prove of diagnostic as well as therapeutic value, since they may be employed in differentiating pain due to muscle spasm from pain due to inflammatory processes with peritoneal irritation, and in distinguishing between organic and functional deformities. In treatment his results lead him to conclude that for cardiospasm and pyloric spasm belladonna is much more valuable than sodium nitrite, whereas in colon spasm the latter gives better results. A large proportion of his patients suffering from this condition were relieved by sodium nitrite

[1] Jour. Amer. Med. Assoc., Sept. 26th, p. 907.

within a week or two, although other treatment had previously failed. The doses used in the comparison were: sodium nitrite, gr. 1, three or four times a day; extract of belladonna, gr. ½; and atropine sulphate, gr. 1/100; so the full therapeutic effect of the latter drugs should have been obtained. The use of amyl nitrite in acute attacks of pain due to spasm and of sodium nitrite in less urgent cases has advantage in ease of administration and perhaps rapidity of action.

From the radiologist's point of view Dr. W. W. Fray [2]—who says that amyl nitrite acts irregularly—has studied the effect of ephedrine on tone, peristalsis, and spasm in the stomach and duodenum and has compared it with atropine. He finds that it "accomplishes much the same objective result that is seen after atropinisation, though its mode of physiologic action is different." Neither atropine nor ephedrine, he says, should be regarded as a specific diagnostic agent in the differentiation of intrinsic from extrinsic lesions; for both may relax spasm in the presence of local organic disease yet fail to relax reflex or functional contractions. If relaxation is attempted ephedrine has the obvious advantage that it acts rapidly by mouth; but whatever method is used for the study of spasm, Fray strongly recommends a second examination on a succeeding day. A functional spasm will probably have changed in appearance.

OCCUPATIONAL NEUROSES.

Dr. C. P. McCord [3] has examined 1000 office workers, 1000 factory operatives employed at engineering work, and 165 train despatchers. The third group is small for purposes of comparison, but probably this could not be helped. The occupation of the office workers was of the usual sedentary kind; that of the factory workers was physical, with little or no mental strain; while that of the train despatchers involved an exceptional degree of emotional tension. These men sit at a desk, wearing a telephone receiver over one ear, and receive as many as 200 items per hour for record or decision that may involve life and death for passengers or for crews. They may not leave their desks or remove their earpieces, sometimes for as long as eight hours. Clearly this occupation is one which involves constant and considerable nervous stress. McCord found among them a 67 per cent. incidence of occupational nystagmus, a 52 per cent. incidence of occupational deafness, largely in the phone ear (the left), and a high incidence of telegraphists' paralysis among those older men who had worked Morse instruments. What was most striking, however, was that cardiovascular abnormalities were present in some 82 per cent. of these train despatchers, as compared with 36 per cent. among the office workers, and 31 per cent. among the factory operatives. Here McCord seems to have met one aspect of the situation disclosed by the investigations of the Industrial Health Research Board, when a similar proportion of the working population was found to be suffering from recognisable emotional instability. That secondary cardiovascular disturbances may serve as a measure of such instability was a commonplace to those who treated ex-Service patients suffering from "soldiers' heart" or "D.A.H." Of more specific interest is the light thrown upon our own problem of miners' nystagmus by the observations on train despatchers, whose eyes must constantly scan a large paper train-sheet, ruled into thousands of small rectangles, which is continually being moved back and forth and up and down, and upon which they must make their records. They suffer from a syndrome characterised by nystagmus, blepharospasm and ocular discomfort, tremors, tachycardia, and symptoms of anxiety neurosis. This description would apply as well to miners' nystagmus, except that McCord does not specifically include in the symptoms of ocular discomfort that subjective movement of objects of which miners complain. Another example of this syndrome was described by Tedeschi,[4] who found in maritime crane workers at Genoa a neuropathic disorder, associated with nystagmus, which he attributed to constant ocular stress together with responsibility and danger. Thus in three occupations at first sight different in almost every respect we find as a common element the constant apprehension of danger—an element sufficient in itself to produce a psychoneurosis, one of the symptoms of which is determined in these examples by a special physical stress falling upon the ocular system. Both McCord and Tedeschi assume that the anxiety neurosis is produced by stress and strain, in striking contrast to the assumption, hitherto accepted without question in this country, that the anxiety symptoms shown by the nystagmic miner—the so-called neurasthenia—were in some unexplained way due to the oscillation of his eyeballs. This difference of outlook is important, for if we neglect the influence of danger and mental stress and pin our faith upon improved illumination as a sure preventive of anxiety states in coal-miners we shall be disappointed. By all means let us improve illumination, thus furthering the amenities of an unpleasant and dangerous occupation and removing the optical conditions that produce oscillation with its discomfort and disability. But the psychoneurotic element in the syndrome known as miners' nystagmus will still have to be reckoned with.

PITUITARY AND CANCER.

IN a paper in last week's *British Medical Journal*, Dr. William Susman suggests that the pituitary gland plays an important part in the causation of cancer. The idea that one or more endocrine organs have "something to do" with cancer is not a new one, but as a rule it is based more on speculation than on evidence. Dr. Susman came to implicate the pituitary as a result of an extensive study of all the endocrine organs in a large number of patients 30 of whom had cancer. From his observations he concludes that in cancer there is an overactivity of the anterior lobe, which is supposed to stimulate growth, and a disturbance in the functional activity of the posterior lobe, which is believed to restrain growth. From changes in the pancreas he deduces that in cancer there is also an increased demand for carbohydrates. The validity of his views he has tried to test by experiments on mice, but the experiments are, as he admits, too few to be convincing, and more interesting are the clinical results obtained in cancer patients with injections of pituitrin, which was supposed to inhibit the overactivity of the anterior lobe. These injections were combined with a diet poor in carbohydrate, and later with injection of an ovarian extract (theelin). Of five cases so treated four showed a slight improvement, while in one there

[2] Amer. Jour. Med. Sci., September, 1931, p. 387.

[3] The Heart Problem of the Worker. By C. P. McCord. Read at the 41st annual meeting of the Association of Life Insurance Medical Directors of America. New York. 1931. Pp. 28.

[4] Ramazzini, October–November, 1928.

was a definite separation of the tumour from the surrounding tissue.

Most students of cancer find it difficult to understand how a disease such as cancer, which is strictly localised at its inception, can be caused by the failure of a growth-regulating mechanism which operates through the blood stream. Even in the adult organism processes of normal growth are still proceeding—e.g., in the lymphoid tissues, in the mucous membranes, and in the genital organs. If the appearance of cancer was associated with the failure of disturbance of a mechanism regulating normal growth, one would expect disturbances of normal growth in the organs just mentioned. Moreover, one would expect to find cancer in some of the syndromes of anterior lobe dysfunction which are described at length by Prof. C. G. Lambie and Dr. B. P. Wiesner in the *Edinburgh Medical Journal* for November. These are a priori objections, but they demand convincing evidence, experimental or clinical, before they can be dismissed as irrelevant, and before the pituitary or any other organ can be implicated in the ætiology of cancer. With that reservation it may be admitted that the results obtained by Dr. Susman are suggestive enough to justify further research along the lines laid down by him. So those who have had extensive experience in the treatment of inoperable cancer by the most diverse methods know that the first application of a new treatment to a cancer patient will sometimes be followed by a striking temporary improvement but that the same treatment will fail completely when applied subsequently to numerous other apparently similar cases. This should always be borne in mind in appraising the significance of attempts to influence the growth of cancer in man by new therapeutic measures.

THE NOBEL PRIZEMAN.

THE Nobel Prize for Medicine is this year to be awarded to Prof. Otto Warburg, of Berlin. A prominent member of the Kaiser Wilhelm Gesellschaft für Forderung der Wissenschaften, he was until a year ago the scientific director of that section of the Kaiser Wilhelm Institut für Biologie at Berlin-Dahlem dealing with cell-physiology; this and cognate subjects having constituted the main part of his important contributions to science over the past 20 years. These researches, many of which have been embodied in his two volumes of collected work,[1] have been conceived on the very broadest foundation, and are remarkable for the clarity of thought combined with great experimental skill which their author has brought to bear on a previously obscure section of biology.

Prof. Warburg's earlier work was largely concerned with the study of catalysis, his name being particularly associated with the applications of this study to catalysis in living cells, and the problems of the action of chemically indifferent narcotics on the one hand, and of the specific anticatalysts or catalyst poisons on the other. This work led naturally to his more recent study on the problems of respiration and fermentation in living animal and vegetable cells. He formed the view that the processes of respiration and sugar-cleavage, among other vital reactions, were catalysed by complexes consisting of a particular type of organic compound of a heavy metal such as iron. In the case of respiration of tissues, he has carried the analysis of the problem further by a recent and characteristically bold investigation, taking advantage of the light-sensitive properties of compounds of iron with carbon monoxide, in order to determine the absorption spectrum of the essential iron complex or respiratory enzyme. The compound, contained to the extent of only 1 part in 100,000,000 in cells, appears to be an iron-porphyrin compound, in which the porphyrin group is more closely related to the chlorophyll type than to that present in hæmoglobin. It is therefore not too much to say that through this work more is known of the probable chemical structure of the respiratory enzyme than of that of any other similar active agent present in living cells—a remarkable triumph when one considers the almost infinitesimal amount which this iron-complex constitutes of the total mass of the cells.

Important contributions have also been made by Prof. Warburg to the problems of photosynthesis and carbon dioxide assimilation by green plants. In the field of medicine, however, for practical reasons, the main interest centres inevitably around his work on the metabolism of cancer tissues. It was not until 1923 that the remarkable extent to which living tumour cells are able to convert carbohydrates into lactic acid was discovered. In that year Warburg found that these cells may produce as much as one-tenth of their own weight of lactic acid in one hour, an observation that has since received abundant confirmation. The significance of this aerobic lactic acid production is as yet incompletely realised, and it is not possible to do justice to its implications in a short space. It seems likely, however, that it may furnish an additional source of energy, at the expense of which the tumour cells can survive under conditions where normal cells would perish.

A year ago Prof. Warburg was appointed director of the new Kaiser Wilhelm Institut für Zellphysiologie at Dahlem. This building was supported by the funds of the Rockefeller Foundation, in order that he might there continue his work on the fundamental life-processes which eventually may well prove as important to practical medicine as it has already shown itself to be in the fields of pure biological and biochemical research.

[1] Uber die Katalytischen Wirkungen der lebendigen Substanz, Berlin, 1928: The Metabolism of Tumours. Translated, with additions, by F. Dickens, Ph.D. London: Constable and Co., 1930.

VACANT BEDS IN LONDON HOSPITALS.

THE statistical review of the work and finance of the London hospitals,[1] just published by King Edward's Hospital Fund for London, shows that voluntary gifts to hospitals, including legacies, increased from £1,689,000 in 1928 to £1,836,000 in 1930. There was, it is true, some decrease in 1930 compared with 1928 and 1929 in the amount received from the general body of subscribers and donors, but this was more than set off by the receipt of a large single donation of £100,000. Notwithstanding an advance of £131,000 in the total running expenditure, due to progress in various directions, including the upkeep of 350 additional beds, the aggregate surplus of income over expenditure in 1930 was £80,000. The report contains a valuable appendix on unoccupied beds, in which it is pointed out that any improvement in the percentage of beds occupied would in effect be as valuable as the building of additional bed accommodation. During the year 1929, with an average complement of 15,952 beds in London

[1] To be obtained from the office of the Fund, 7, Walbrook, E.C. 4. Post free 1*s.* 3*d.*

voluntary hospitals, on an average 519 were closed daily, and 2057 were vacant daily between the discharge and admission of patients. The causes of closure in the first and smaller group included building, reconstruction, difficulty of providing nurses, cleaning, repairs, infection, and staff holidays. Closure of this kind is not regarded as an index of efficiency. Beds vacant numbered four times as many as beds closed, and were distributed thus among the various classes of hospital beds.

Percentage of beds vacant between discharge and admission.

Medical	10·4	Accident	17·5
Surgical	11·0	Isolation, observation, and septic	36·9
Medical and surgical	15·8	Pay beds	25·1
Maternity	10·3	Staff beds	53·0
Gynæcological	9·6		

It is of course to the interest of the hospital that certain classes of beds—e.g., isolation, septic, and staff beds, should be as empty as possible. If a hospital, too is to make adequate provision for accident and other emergency cases it is essential to reserve a certain number of empty beds for them. The high ratio of vacancy in pay beds which exists at most hospitals is ascribed to the facilities in this direction not being yet sufficiently well known. In general the causes leading to vacant beds may be divided into three categories: (1) The main cause in the more highly organised hospitals is to be found in the apportionment of beds for special classes of cases for which the demand is variable, without a definite system of admission of other cases to these beds as circumstances may demand, when such admission is practicable. In some cases the vacancies may be caused by the postponement of a patient's admission to suit the time-table of a surgeon. In other cases the vacancy may be due to failure on the part of the hospital to control as far as possible the loss of bed-days due to causes originating with the patients. (2) Failure to accept or delay in accepting admission when notified of a vacancy. Linked up with this is disinclination on the part of many patients to be in hospital during holiday periods. (3) Vacancies may be due to the necessity of providing beds for which a variable demand may exist and which cannot be allocated to other purposes, either on account of the nature of the case—e.g., beds in a fever hospital, or because the demand is only known from day to day as it emerges—e.g., the daily provision of beds for accidents. By drawing attention to the results of this inquiry the Fund hopes to effect some improvement in the percentage of beds occupied.

MEASLES.

DURING the past four years in London measles has caused eight times as many deaths as scarlet fever and one and a half times as many as diphtheria. During each biennial epidemic some 50,000 children are affected and about 10,000 of them have to be admitted to the London County Council's hospitals. This season's outbreak, if it follows the usual plan, will begin during the late autumn, reach its meridian during March and take six or seven months to complete the circuit of London. Faced with this immense problem the authorities have begun by drawing public attention to the dangers of the disease and by circulating certain excellent rules for its management. "Every effort," they say, "should be made to postpone the contraction of the disease until after the third or preferably until after the fifth year of age, for the younger the child the greater is the risk of serious illness arising from broncho-pneumonia or other complications. Adequate medical, nursing, and hygienic care are the most important means for preventing complications and a fatal outcome. The disease is particularly fatal among children under-nourished and living under unfavourable conditions. Special methods of control must be applied to prevent or ameliorate the disease in such children." These statements will, we hope, help to correct many of the misapprehensions about measles which are so common. But there still remains an unnecessary cloud of pessimism among the public at large. It seems extraordinary that our most influential newspaper should be able to tell its readers (on Tuesday) that measles "remains almost wholly unpreventable"; for in last week's LANCET (p. 977) Dr. S. P. Bedson was able to show that this is a disease unusually easy to prevent or modify. In 1926,[1] in discussing its prophylaxis by serum and whole blood, we devoted a good deal of attention to the academic problem of whether it would be wise to eliminate measles and thus perhaps reduce the national immunity. But at the present rate of progress this does not seem to be a pressing danger.

MR. BERNARD LAMB.

MEDICAL men throughout the country will regret to hear of the death which occurred, after an operation for appendicitis, on Oct. 30th, of Mr. J. Bernard Lamb, who was for over 40 years the secretary of the London office of Epsom College. Mr. Lamb devoted his life to the Royal Medical Foundation attached to Epsom College, and his signature at the foot of appeals for funds represented but a small part of his duties, as he interpreted them. His extraordinary sympathy with those who desired to introduce their claims upon the Foundation involved him in inquiries of the most delicate sort, and when those in whom the responsibility was vested of adjudicating upon these claims had to inquire into the merits of the case, it was always found that he could supply the fullest information for their guidance. It is no exaggeration to say that the impartiality with which the benefits of the Foundation have always been administered was made possible mainly by Mr. Lamb through his assiduity, his deep compassion for the hard case, and his shrewd appreciation of the measure of that hardness. It is sad to think that he died within one month of his retirement on a pension. A Requiem Mass was said for him at St. Dominic's Priory, Southampton-road, N.W., on Nov. 3rd.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, Nov. 24th, when the President, Sir Donald MacAlister, will take the chair and give an address.

[1] THE LANCET, 1926, i., 669.

CLOSING OF HIGHBURY WAR HOSPITAL.—In January the Ministry of Pensions will close Highbury, King's Heath, the last of the Birmingham war hospitals, partly as a measure of economy and partly by reason of the decreasing number of men requiring treatment. Highbury was originally the residence of Mr. Joseph Chamberlain, and was sold by his family to trustees charged, when it is no longer needed for its original purpose, to use it for such public purposes as they and the corporation of Birmingham may determine. From March 1st, 1919, to Sept. 30th last the hospital received 12,868 patients. There now remains only 65, whose destination has not yet been decided upon.

SPECIAL ARTICLES

AMERICAN COLLEGE OF SURGEONS:

CONGRESS IN NEW YORK.

(FROM A CORRESPONDENT.)

THE American College of Surgeons held their twenty-first Clinical Congress in the new Waldorf-Astoria Hotel, New York, beginning Monday, Oct. 12th, and ending Friday, the 16th. Over 5000 surgeons and hospital executives attended. Clinics were held at practically all the hospitals of New York and Brooklyn, and meetings and conferences on almost every aspect of surgery and hospital management took place in the Waldorf-Astoria Hotel. The meeting was so immense and its discussions of so wide a range that only a few of its more especial features can be considered.

At the inaugural meeting in the Waldorf-Astoria Hotel on the evening of Oct. 12th, Dr. C. Jeff Miller, New Orleans, the retiring president, gave an address on Medical Men and their Lay Critics, in which he deplored the evils of State control, and expressed his doubts of the practicability of health insurance and State control in the United States. Dr. Allen B. Kanavel, Chicago, the president-elect, chose as title for his address, Fundamentalism and Social Progress in Medicine, and held a view different to that of his predecessor. He pointed out that social conditions were changing, and that the medical profession must adapt itself to the altered situation, and not be unbending in its opposition to some modifications of the system of medical practice that were intended to ensure equally to the indigent, the man of moderate means, and the wealthy, competent diagnosis and treatment; it should be possible for medical men to adjust their professional work and yet retain their self-respect and the respect of the community. The physicians in charge of any public service must receive compensation commensurate with the years necessary for the adequate study of medicine. Public service, he considered, must be accompanied by work at voluntary or private institutions, and by private practice, if the high standards of medicine are to be maintained and the continued advance of the frontiers of medical knowledge ensured.

Mr. Arthur H. Burgess, professor of clinical surgery, Manchester, gave the Murphy oration, and associated Murphy's name and work with the principles of urinary surgery in an interesting address that was much appreciated by the audience.

A paper was read on the evening of Oct. 13th by Dr. George W. Crile (Cleveland) on the technique and end-results of denervation of the adrenal glands for neuro-circulatory asthenia. In the Cleveland Clinic Dr. Crile and co-workers, after experimental investigations into the adrenal sympathetic system, and on analogies drawn from operations on the thyroid sympathetic system, have sought to control certain analogous energy transforming diseases, particularly those due to pathological activity of the adrenal sympathetic system. In this field they have performed operations on the adrenal sympathetic system in 126 patients. This paper dealt only with the results of one group, that of neuro-circulatory asthenia. Dr. Crile pointed out that the condition designated as "soldier's heart," because it was very common during the late war, occurred more or less frequently in the stress of civilian life. It resembled, he said, mild hyperthyroidism, especially where a goitre and a moderate increase in basal-rate were present. The end-results of denervation of the adrenal glands in "soldier's heart" he gave as follows. Of 21 cases of bilateral denervation done at the Cleveland Clinic during the past 18 months, 18 have remained well up to date, in two cases end-results were negative, while one patient could not be traced. By the same surgical procedure Dr. Crile stated that symptoms of peptic ulcer had been relieved immediately, and acidity reduced in all the cases observed.

On the evening of Oct. 15th Dr. W. E. Gallie (Toronto) described his experiences with the transplantation of fascia in the repair of hernia. He said that ten years' experience in the use of sutures of fascia lata in the repair of ventral and diaphragmatic hernias had demonstrated that the method is sound. He analysed the results, which showed a high percentage of cures among cases in which recurrences had been common, and described a method of introducing sheets of fascia into large openings in the abdominal wall and diaphragm, while he reported an extension of the method in cases of undescended testis.

There were two special symposiums, one on cancer on Oct. 15th, and one on industrial medicine and traumatic surgery on Oct. 16th, both of which were largely attended. Sir Charles Gordon Watson, in discussing cancer of the colon, sounded a note of warning with regard to the use of radium in the treatment of cancer. He pointed out that radium therapy was still in its infancy; and could not achieve the impossible, while it demanded a skill that experts could only be expected to command, even after a long training. Dr. Donald Balfour said that he was convinced that the treatment of cancer of the stomach would become more and more efficient. Complete relief extending over a five years' period was now obtained in 50 per cent. of cases in which the lymphatics were not involved, and the records of the Mayo Clinic showed 278 five-year cures following resection for cancer of the stomach. From the standpoint of palliation, surgery could offer so much to the patient with cancer of the stomach, that these facts should be constantly reiterated to both the public and the medical profession. Sir G. Lenthal Cheatle was not optimistic as to the results of radium in the treatment of breast cancer; and while speaking of the supreme importance of early diagnosis, Dr. Burton J. Lee (New York) advocated the establishment of diagnostic clinics.

The symposium on industrial medicine in relation to traumatic surgery proved of high interest, and 17 papers were read at the meeting. Among these were several by laymen, who took up the subject from the points of view both of workmen and employers. The governor of New York State, Mr. Alfred E. Smith, who is Democratic nominee for the Presidency of the United States, said: "We have travelled far in learning new methods of caring for the public health. In the last 25 or 30 years we have learned the meaning of preventive medicine, and we have learned more about the causes of disease. But it is difficult to carry knowledge to every home. Too many people are still ignorant of the importance of calling in a physician. They do not realise the importance of that early stitch which saves nine others. Such a body as the American College of

Surgeons can do much to further disseminate that knowledge. There is no asset of the State above and beyond a healthy citizenship. Health begins before the cradle in the care of the mother, and then of the infant from the hour of its first breath."

At the Convocation on Oct. 16th, Honorary Fellowships were conferred on Dr. H. v. Haberer, professor of clinical surgery at Cologne, Mr. A. H. Burgess, and Sir Charles Gordon Watson. The presidential address was delivered by Dr. Allen Kanavel on the Program of the College and the Initiates' Responsibility; and the Fellowship address on "Medicine and the Contemporary Social Order" was delivered by James Angell, president of Yale University. Dr. J. Bentley Squier, professor of urology at Columbia University, was elected president for 1932, with Dr. Charles Gordon Heyd and Dr. Gallie as vice-presidents.

The success of the meeting reflected the greatest credit on the organising ability of Dr. Franklin H. Martin, director-general of the College.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(*Continued from p. 986.*)

THE trial is being prolonged far beyond expectation by the endeavour of counsel for the accused to convince the court that the death of the children was due not to human error but to recovery by the bacilli of their original virulence. This endeavour has turned the court more and more into a medical gremium discussing the pros and cons of the value of B C G vaccine. Prof. Calmette, it seems, has declared that he would decline to appear before the court if summoned, as the vaccine used in Lübeck was not prepared in accordance with his instructions. The court would therefore not be in a position to give an opinion on the efficacy of genuine B C G.

Nurse Schütze, the laboratory assistant of Prof. Deycke, and the fourth person to be indicted, has admitted in examination that the medical and nursing staff and even the servants of the hospital could freely enter the rooms where many strains of bacilli were preserved. It was stated that on the same table cultures of human tubercle bacilli, Friedmann's turtle bacilli, and B C G stood together for several days. The public prosecutor asked why a tube with human bacilli found in the laboratory was not labelled, whereupon Nurse Schütze replied that the label had fallen off owing to the heat and was later fixed again on the tube. The incubator was shut but the key could easily be found by anybody entering.

The examination of the accused being concluded witnesses were called. Senator Mehrlein, a member of the Lübeck government with special charge of hygiene and hospital matters, explained how the Calmette procedure came to be introduced. When Dr. Altstädt proposed that the B C G should be given to children for prophylactic purposes he had asked him whether the method had been tested in animals. The reply was yes. He had not been informed that in Paris the vaccine was produced in a special laboratory. He had instructed Dr. Altstädt to find out local medical opinion. Dr. Jannasch, physician to the Lübeck Hospital, had accordingly read a paper before the local medical society which had unanimously agreed to the introduction of the Calmette method into general practice. Herr Mehrlein did not then know that of 130 medical practitioners only 35 had attended the meeting. Dr. Jannasch gave evidence that he had stated before the Lübeck medical society that B C G vaccine was innocuous but that he could not say beforehand whether it would prove efficacious.

The court then transferred the sitting for a day to the laboratory of the hospital to study the methods adopted there and to ascertain whether an adulteration of the vaccine was possible. Prof. Deycke explained how the B C G cultures were preserved. Questioned why they were kept in the same incubator with other cultures he answered that a special incubator for every strain of bacilli did not exist even in the most lavishly furnished American universities. Prof. Kolle asked whether registers of the cultures and especially of the B C G were kept in the laboratory. Nurse Schütze explained that she had made notes, which were accordingly handed over to the court. Prof. Deycke demonstrated how he had treated the original B C G received from Paris.

After return to the court-room some midwives were examined. One of them gave evidence that the tubes received from the laboratory were closed by a glass cork but not as reliably as it is usual with licensed chemists. Sometimes the parents, without the help of a midwife, had given the vaccine to the infants. Another midwife declared that someone representing the parents had told her that the midwives might be prosecuted if Dr. Altstädt were acquitted, and that therefore it would be in her own interest to try to remember everything. Dr. Altstädt had told them especially about the innocuity of the B C G and how long its immunising effect would last.

Dr. Hamel, president of the German Health Office, was then examined. His office had, he said, in 1927 advised to postpone the introduction of the Calmette procedure until the results of further research were known; this decision had been sent to the governments of the individual States, including Lübeck. The office is, of course, an advisory body without executive powers. Its decision however had not been altered. Questioned further he said that the Health Committee of the League of Nations had stated that B C G was innocuous. He knew that B C G had been tried in Germany several times, but only, he thought, in infants from tuberculous families, the cultures being purchased direct from the Pasteur Institute. In Lübeck B C G was introduced on a large scale without any information being sent to his office.

YORK MEDICAL SOCIETY.

CENTENARY CELEBRATION.

THE York Medical Society, on Thursday, Oct. 29th, celebrated its centenary. In the afternoon a large company of the members and their friends assembled in the Tempest Anderson Hall when Mr. Gerald Hughes, the President, supported by Lord Moynihan, received the invited visitors, among whom were the Dean of York; Prof. Bower, lately President of the British Association; Mr. D. P. D. Wilkie, professor of surgery in the University of Edinburgh; Dr. Watts Eden, President of the Royal Society of Medicine; Mr. Herbert Tilley, President of the Medical Society of London; Dr. W. G. Willoughby, President of the British Medical Association; Dr. Arthur Hawkyard, Lord Mayor of Leeds; Sir William Lister, Dr. Geoffrey Holmes, and Sir Squire Sprigge.

Mr. Hughes opened the ceremonies with a brief address in which he alluded to the antiquity of the

Society, which, he said, throughout its extended existence, had played a great part in keeping the local profession keen in work and high in ideals, thus playing a part in bringing the science of medicine to its present standard. He noticed also, in reference to the presence of Prof. Bower, that the British Association was founded at York. Lord Moynihan, who was announced to deliver an Oration, then gave a running commentary upon a striking collection of pictures, thrown on the screen, which illustrated the continuity of disease throughout immeasurable time and the successful application of surgery to various injuries and fractures. He concluded with an eloquent estimate of Lister as the greatest man of science the world had ever known. A vote of thanks, proposed by Dr. Watts Eden, and seconded by the Dean of York, Dr. Lionel Ford, was accorded with enthusiasm. The company then attended a reception held by the President in the Guildhall, after which many of them were conducted round the Minster by the Dean.

In the evening the annual dinner of the Society was held at the Royal Station Hotel, York, when Mr. Hughes presided and was supported by, among others, the Archbishop, the Dean, the Lord Mayor, the Sheriff of York, and Mr. Richard Lumley, M.P., the newly elected member for the city.

After the loyal toasts Mr. E. R. Dodsworth proposed the toast of the Archbishop, Clergy, and Ministers of All Denominations, when Dr. Temple replied in studiously simple terms, urging the need for unity between the clergy and the medical profession. Recognising that it was not possible to divide bodies and souls, he said that if the Church and the profession of medicine attained to a fuller understanding of the services rendered by each other, a harmonious cooperation of great value to mankind would result.

The toast of the Orator of the Day was proposed by Sir Squire Sprigge, who described Lord Moynihan as orator, scholar, surgeon, and man of the world. The audience were asked to compare the position of surgery when Lord Moynihan received his first qualifications and that which it enjoyed now. Although, he said, Lord Moynihan had seen no pre-Listerian era, he began work when the possibilities opened up were hardly realised and when the modern surgery of the abdomen, brain, and thorax remained to be done. In the huge progress that had taken place he described Lord Moynihan as having played the part of a great inventor as well as a great performer. Lord Moynihan, in reply, dwelt on the development of surgery which had followed the institution of the Association of Surgeons, through which, he said, surgeons were brought together not only by professional ties but by ties of personal friendship. The Association and its Journal had made of surgeons a band of brothers, while the disciples of Lister had rendered British surgery the safest and best in the world, and surgery the greatest of the arts.

The toast of the Guests was proposed by Dr. Henry Yellowlees in humorous terms, and was replied to by Prof. Wilkie, who expressed the thanks of the guests for the hospitality received not only at the banquet but throughout the day. He caused much amusement by saying that, as far as the banquet was concerned, he had been, in thrifty fashion, keeping a private centenary of his own, because 1931 happened also to be the 100th year of the existence of his University Chair. Dr. Hawkyard proposed the continued prosperity of the Society, speaking as President of the Leeds and West Riding Medico-Chirurgical Society, when Mr. Hughes briefly replied.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

THE HOSPITALS SWEEPSTAKE.

THE drawing of prizes in the Irish hospital sweepstake on the Manchester November Handicap is to take place next week. At the time of writing the precise amount of funds available for prizes and for the hospitals interested has not been made public, but it is understood that in both cases the sums are slightly less than those available from the last sweepstake, though more than those from the previous one. Last week the Minister for Justice published the names of the members of the committee of referees which is, in future, to advise him as to the distribution of the moneys available for the hospitals. The chairman of the committee is Mr. Peter Hughes, formerly Minister for Defence of the Irish Free State, and his colleagues are Mr. Vincent Kelly, an architect of high standing, and Mr. Henry Mangan, formerly accountant to the Dublin Corporation. One may remark with some surprise that there is no medical man on this committee, particularly in view of the fact that the committee is empowered to visit and inspect the hospitals, as well as to inquire into their accounts and their needs. A private Bill has been introduced to the Dáil with the intention of permitting charitable nursing associations to benefit by the sweepstakes. It is proposed that of the proportion of the proceeds which should go to rate-supported institutions, 5 per cent. should be made available for nursing associations.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

ENCEPHALITIS AFTER VACCINATION.

THE German Health Office has made an investigation into alleged cases of encephalitis and other nervous disorders following vaccination. The inquiry covers the four years 1926–1929, when 102 cases were notified. Of these, nine were not accepted by the Commission because encephalitis developed long after vaccination. In ten cases, eight of which were fatal, no opinion could be given because the history was inadequate. Six cases again were attributable to other diseases, such as tuberculosis, septicæmia, and pneumonia. Of the remaining 77, 73 had been vaccinated and four revaccinated. In 59 of the vaccinated cases the condition notified was encephalitis. In ten of them the diagnosis was made at post-mortem examination, in 43 others it was certain owing to the clinical symptoms, and in the remaining six it was probably correct. Among the 14 cases of other disorders of the nervous system the diagnosis was verified in four by post-mortem examination. The diagnosis was confirmed at autopsy in one of the four revaccinated cases; in two of them it was doubtful. During the four years there were more than a million vaccinations and a million revaccinations, and there were 27 deaths.

THE ZONDEK-ASCHHEIM REACTION.

The disadvantage of the Zondek-Aschheim reaction for pregnancy is that it becomes manifest only after about four days, a drawback especially in urgent cases such as in extra-uterine pregnancy. Prof. Zondek, in the *Klinische Wochenschrift*, announces

that he has succeeded in accelerating the reaction. By shaking the urine with ether and glucose the reaction becomes more intensive and is visible already after 48 to 72 hours. By using this modified method he obtained a positive reaction in 68 cases of pregnancy from the first to the tenth month and a negative one in 32 non-pregnant women.

CLOSING OF BERLIN SURGICAL UNIVERSITY CLINIC I.

Owing to the bad financial condition of the country the Government has to make cuts in the expenditure of the universities. It has been decided therefore to close the Surgical University Clinic I in Berlin, because expensive repairs of the premises are necessary, and because its present head Prof. Bier, having reached the age-limit, must resign office after the end of the winter term. Notwithstanding the great number of students, there will henceforth be only one surgical clinic under Prof. Sauerbruch, together with the auxiliary surgical clinic under Prof. Borchardt in the Moabit municipal hospital. The Government's decision has led to protests in medical circles and even among the general public. The Surgical University Clinic I. in Ziegelstrasse, which used to be popularly known as the Royal Clinic, enjoys a high reputation among the public—especially its out-patient department which is perhaps the largest in Germany. Medical men regret the closing of the clinic because it is regarded as the cradle of modern German surgery, where men like Dieffenbach, Langenbeck, Bergmann, and now Bier, have worked. The Berlin Medical Society at its last meeting adopted a resolution of protest.

APPENDECTOMY AS AN EXTRA.

A woman consulted an obstetric surgeon because of sterility and consented to an operation to correct retroflexion of the uterus. In the course of the operation the surgeon found that she had appendicitis and accordingly removed the appendix. The woman declined to pay the fees and even brought an action against the surgeon because she had not previously agreed to the removal of the appendix. But the Berlin Court of Appeal found against her. In judgment it was stated that the surgeon, in finding an abnormal condition of the appendix, had been justified in assuming that the patient would be willing to have it removed, since its condition would in any case have made the operation necessary before long. He had thus acted in her interest by avoiding a second laparotomy and was entitled to claim his fees for that operation as well.

NEW REMEDY FOR SEA-SICKNESS.

Thalassan, a compound consisting of belladonna, strychnine, and diallylbarbituric acid, was recommended by Prof. Bruns, of Königsberg for the treatment of sea-sickness, and Dr. Weiss, a medical officer of a Hamburg-America liner, reports on results obtained with it. For prophylactic purposes he first gave it to five passengers who had already crossed the Atlantic several times with severe sea-sickness. Notwithstanding the heavy sea, three of them were not sick at all, while in the other two the symptoms were very slight and disappeared when they had received a second dose. The remedy was then tried in 35 very severe cases of sea-sickness in passengers crossing for the first time. All the 21 men were cured, and all but two of the 14 women. A dose of two tablets sufficed in most cases, but in some this amount had to be given two or three times. No undesirable effect was noted.

LONDON MEDICAL EXHIBITION.

(Concluded from p. 989.)

THE annual London exhibition of drugs and surgical appliances was held in the Royal Horticultural Society's Hall at Westminster, from Oct. 19th to 23rd. Last week we enumerated some of the drugs and pharmaceutical preparations shown, both new and well tried. We now do the same, as far as space permits, for the surgical, ophthalmological, and electro-therapeutic apparatus, including surgical accessories and antiseptics.

Surgical Instruments and Appliances.

(105) The ANTIDOLAR MANUFACTURING CO., INC. (New York, U.S.A.), showed Waite's procaine solution for local anæsthesia; and Solila needles, which are now well known for sharpness and freedom from clogging.—(50, 51) ARNOLD AND SONS (50–52, Wigmore-street, W.) showed a wide range of all-British instruments in stainless steel; a selection of surgeons' bags and cases—which can be made up to the doctor's own order; and a new transformer for use off the main electric supply, absolutely earth-free, for heating cautery burners.—(101) BACTEROL LTD. (435, Strand, W.C.) showed their disinfectors, which are cheap, very safe, ready at a moment's notice, roomy, and occupy small space; also their vaporising Bacterol for disinfecting the air.—(26) BRUCE, GREEN AND CO., LTD. (14, 16, 18, Bloomsbury-street, W.C.), had a range of ophthalmic apparatus, and particularly drew attention to the Anumbra prism ophthalmoscope, designed to provide a brilliant and uniformly illuminated field, and to eliminate the shadow at the bottom which has spoilt former prism ophthalmoscopes.—(3) CAMERON'S SURGICAL SPECIALITIES, LTD. (Gordon House, 57c, New Cavendish-street, W.), demonstrated their now well-known electro-diagnostoset.—(141) STANLEY COX, LTD. (39, Gerrard-street, W.), showed all types of ultra-violet ray, electro-medical, and X ray apparatus, and a surgical diathermy apparatus produced at a lower cost than ever before.—(167) H. E. CURTIS AND SON, LTD. (7, Mandeville-place, W.), showed their abdominal belts and supports, particularly the corset belt "en mains croisées."—(152) F. DAVIDSON AND CO. (143-149, Great Portland-street, W.), amongst their range of optical and medico-electrical instruments, pointed out the Davon wall bracket for ophthalmological work; it is extremely flexible, can be worked with one hand into any desired position, and costs half as much as most others; transformers for light and cautery, which are cheap and completely earth-free; and Pneumette foot arch supports, which provide the foot with an air-cushion instead of a rigid support.—(65) DENVER CHEMICAL MANUFACTURING CO. (London, E.) showed the various Antiphlogistine preparations.—(54) DOMEN BELTS CO., LTD. (26, Sloane-street, S.W.), displayed their hernia, gastroptosis, accouchement, and other belts.—(120, 135) DOWN BROS. LTD. (21, 23, St. Thomas's-street, S.E.), had a full display of surgical instruments, including Howarth's improved Chevalier Jackson's bronchoscopy and œsophagoscopy instruments with recent lens improvements; a complete selection of Meurice Sinclair's operative instruments for fractures, and new fracture instruments by Mr. Souttar; ox-bone plates and spoons by Hamilton Bailey; the up-to-date Quadrant model operation table with several important recent modifications, including an oil-pressure pump; and diathermy cautery knives and endotherms.—(30) C. W. DIXEY AND SON, LTD. (19, Old Bond-street, W.), showing ophthalmic instruments, specially pointed out the efficient, but moderately priced Mackie slit-lamp, and the Maddox Heterophoria Hand-frame.—(70) FASSETT AND JOHNSON, LTD. (St. John's Gate Buildings, 86, Clerkenwell-road, E.C.), in addition to the well-known Seabury and Johnson plasters, had some conveniently fitted

first-aid cases, including one equipped to the standard prescribed for long-distance omnibuses.—(154) J. AND E. FERRIS, LTD. (33, Museum-street, W.C.), demonstrated the most up-to-date crutches, and artificial limbs specially designed to be the exact counterpart of the good limb.—(139) GENERAL ACOUSTICS, LTD. (77, Wigmore-street, W.), showed the latest models of aids for the deaf, electrical and non-electrical, and the public-building Acousticon for enabling deaf people to hear in the church, cinema, or concert-hall.—(18) THEODORE HAMBLIN, LTD. (15, Wigmore-street, W.), showed a range of ophthalmological equipment, including the Lister Morton ophthalmoscope, a dynamic retinoscope, the Franklin nasal ioniser for hay-fever, the Foster Moore gold studs for localising accurately the holes in a retinal detachment as a preliminary to the cautery puncture operation, and the convenient Speclettes, which fold up to the size of a watch.—(145) HAWKSLEY AND SONS, LTD. (83, Wigmore-street, W.), showed hæmatological, psychological, and anthropometrical apparatus, the new Metallique chest-end stethoscope, and a microscope with an inclined ocular, so that the stem of the instrument can be used in the vertical position.—(2) HOLBORN SURGICAL INSTRUMENT CO., LTD. (26, Thavies-inn, Holborn-circus, E.C.), showed a selection of surgical instruments and hospital furniture, including their foot-tilting, twin-pump operation table; the Brilite tongue-spatula; chromium-plated and stainless steel instruments; and diathermy apparatus.—(52) INTERNATIONAL TOOTH CO., LTD. (34, Great Marlborough-street, W.), introduced Solyptol, a harmless and economical germicide with a base of 50 per cent. Faulding's eucalyptus oil; and the Carpule outfit for inducing local anæsthesia by means of a syringe which takes a cartridge of sterile solution and pierces it at the moment of injection.—(137) J. F. MACFARLAN AND CO. (32, Bethnal Green-road, E.) showed their well-known anæsthetics and catgut.—(160) MEDICAL SURGICAL SUNDRIES, LTD. (97, Swinderby-road, Wembley), showed instruments and accessories of all kinds, including the Esseff modern inhaling apparatus, and various emergency and car cases, and standard cabinets.—(92) MOND STAFFORDSHIRE REFINING CO., LTD. (Abbey House, Westminster, S.W.), showed various preparations of monsol, including a pessary and nasal spray.—(34) J. NESBITT-EVANS AND CO. (Wednesbury, Staffs) showed easy-running beds and cots, and ward equipment.—(57) PEARSON'S ANTISEPTIC CO., LTD. (61, Mark-lane, E.C.), reminded visitors of the value of their Iodine-Medol antiseptic ointment and Creolin germicide.—(24) W. H. PETTIFOR (11, Victoria-street, S.W.) showed a range of electrical aids for the deaf, and test sets and instruments enabling the doctor to prescribe the best pitch, wave-form, and sound-volume for each case.—(134) PORTABLE X RAYS, LTD. (15A, Chiswick-lane, W.), showed the excellent results obtainable from a portable X ray apparatus, and demonstrated the outfit used in their X Ray Car Service.—(18A) PROSELDIS CHEMICAL CO., LTD. (32, Great Dover-street, S.E.), preached the necessity of combining a chemical and mechanical contraceptive to insure efficiency, and showed various rubber pessaries; cocoa-butter and foaming pessaries; lactic acid and chinosol jellies; and cleansing outfits.—(86) RADIUM-ELECTRIC, LTD. (24, Grosvenor-gardens, S.W.), exhibited the Q-Ray compress for applying dry warmth and mild radio-activity in cases of arthritis and allied complaints. The compresses are made in all shapes, sizes, and voltages, and each is supplied with a length of flex and a plug to attach it to the house supply.—(12) W. J. RENDELL, LTD. (161–65, Rosebery-avenue, E.C.), emphasised the reliability of their chemical contraceptives.—(88) SCHOLL MANUFACTURING CO., LTD. (188–194, St. John-street, E.C.), showed supports and remedies for every kind of foot trouble, including weak ankle, corns, bunions, and hammer-toe.—(62) A. G. SHELDON AND CO., LTD. (59, Weymouth-street, W.), had a stand to remind practitioners of their reliable day and night service of sterilised surgical outfits of all kinds.—(76) SHORT AND MASON, LTD. (Atlantic House, 45–50, Holborn-viaduct, E.C.), among their familiar sphygmomanometers and thermometers, showed a recording sphygmomanometer which furnishes a graphic record of diastolic and systolic pressures without a stethoscope; and a tubal insufflation apparatus.—(10) T. J. SMITH AND NEPHEW, LTD. (42, Tavistock-square, W.C.), showed the latest preparations of their Elastoplast adhesive plaster bandage, now so popular for varicose ulcers and various injuries; particularly Semiplast, a form in which the plaster only covers half the width of the bandage, and so need not come in contact with the skin after the first circlet has been applied; also the Cellona plaster bandage.—(36A) EDWARD TAYLOR, LTD. (Salford, Lancashire), showed all kinds of medicated plasters; Flexoplast, the adhesive elastic bandage for varicose ulcers and veins; Emergoplast, a convenient emergency dressing; and Zinc oxide plasters spread on white wool felts.—(4) THERMEGA LTD. (53, Victoria-street, S.W.) demonstrated again their electrically heated blankets and pads; and (97A) THERMOGENE CO., LTD. (Hayward's Heath, Sussex), their medicated wadding, which needs no description.—(23) TINTOMETER, LTD. (The Colour Laboratory, Salisbury), showed modern clinical laboratory apparatus, including the B.D.H. Model Lovibond tintometer, brought out in conjunction with the British Drug Houses, for colorimetric determinations of vitamin A and other tests.—(111) TITANIUM AND RARE METALS, LTD. (25, Haymarket, S.W.), showed Crombie lamps and apparatus for using titanium alloy electrodes.—(43) JOHN WEISS AND SON, LTD. (287, Oxford-street, W.), showed a wide range of instruments, including Denis Browne's tonsil forceps and pyloric dilator, and a new suprapubic shield.

British Spas.

No country in the world offers such a variety of natural mineral waters and spa treatments as are available in this country, and British spas were represented by exhibits from Bath, Buxton, Harrogate, and Torquay. On Stand 60 the Corporation of Bath set out the bathing establishments and other features of interest in and about its famous pump-room. The spa is open all the year round, and a special programme has been drawn up for the forthcoming autumn season. The Buxton exhibit on Stand 114 consisted of photographs of the bathing establishment and samples of the water which flows at 82°F., highly charged with radium, and also containing helium and argon. There is also a strong chalybeate spring. Harrogate on Stand 153 claims uniqueness for the diversity of its waters, for there are 88 springs, of which 16 are used internally, while all continental methods of treatment are available. The spa is open all the year round, with reduced prices in winter. Torquay Corporation on Stand 38 invited inquiry about England's marine spa, where every method of treatment is offered and seawater is available for all baths and douches, while Dartmoor peat and Torbay seaweed baths are specialities. The new sun lounge, 95 by 18 feet, glazed with vitaglass, enhances the amenities of a cure during the winter months. Throughout the spas hotel tariffs are cheaper during the autumn and winter. A compendious handbook, with charges and list of accommodation, on application to the hon. secretary of the British Spas Federation, The Pumproom, Leamington Spa.

In last week's report the preparation HEPATAGEN, exhibited by C. J. Hewlett and Son, Ltd. (35, Charlotte-street, E.C.), was misspelt.

VOLUNTARY CUTS IN HOSPITAL SALARIES.—The Staffordshire Mental Hospitals Board has accepted an offer by the staffs of the three mental hospitals of the county to forego a proportion of their salaries and wages. The cuts will vary from 5 per cent. upon salaries from £150 to £500, to 10 per cent. upon those over £1000.

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of three cities:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Hull .. .. (305,600)*	20·6	12·5	1·29	1·35	1·7	2·1	69/31	39	4·4
Portsmouth.. (242,000)†	16·3	11·8	1·02	1·38	1·4	2·4	59/25	39	2·6
Leeds .. .. (478,500)†	15·8	12·4	1·11	1·53	1·7	2·3	68/38	26	4·2

* Estimated (R.-G.) for 1930 and adjusted for extension of City on April 1st, 1930. 1931 Census figure 313,366.
† R.-G. estimates for 1929. 1931 Census figures 249,288 and 482,789.
Registered stillbirths per 100 live births: Hull, 4·1; Leeds, 4·4.

Hull.

Dr. W. M. Frazer's report shows that the city of Kingston-on-Hull has before it a difficult problem of hospital reorganisation. The corporation has inherited from the Hull and Sculcoates boards of guardians two institutions of the mixed type, of which the hospital and house portions cannot be separated. These have been renamed the Anlaby-road and Beverley-road institutions. The main part of the former was built in 1851, with additions to the hospital in 1882 and 1914. The latter was built in 1837 and a new hospital was being considered when the war broke out. Both these institutions have serious defects according to modern standards and the accommodation for the nursing and domestic staffs is unsatisfactory. They treat about two-thirds of the general hospital cases in the city. Anlaby-road has a nucleus of 345 satisfactory beds with a modern operating and X ray block, and a scheme is in hand for remodelling it for use as a municipal general hospital. Towards the end of the year a self-contained block was being adapted for the radium treatment of cancer and it was hoped to open this block in May, 1931. Patients suffering from pulmonary tuberculosis have been sent to Anlaby-road, while surgical tuberculosis and venereal diseases have been sent to Beverley-road. The maternity wards at both institutions have been closed and the work transferred to the municipal maternity home which has been adapted from the old hospital for infectious diseases in Hedon-road. This maternity home includes an infants' hospital and has 49 beds for maternity cases, 10 for puerperal sepsis, 2 for venereal diseases, 16 for dietetic diseases in infants, and 8 for nursing mothers. Healthy children under the age of three have been removed from the institutions to a new nursery.

The new hospital for infectious diseases was opened in 1930 with 112 beds and an addition of a 38-bed pavilion and a block of 10 cubicles will be ready for occupation in the middle of 1931. Other additions will be made until 374 beds have been provided for infectious diseases. Experience of working the two institutions since the transfer has shown that the total hospital beds in Hull are insufficient to meet the needs of the area. A scheme has been sanctioned for an orthopædic hospital with 100 beds at Cottingham, which will supply a long-felt want and render it unnecessary to rent beds in outside institutions. Full coöperation with the voluntary hospitals can hardly be obtained until the council have arranged the programme for dealing with their own institutions, but evidence of coöperation is the appointment of seven members of the honorary staffs of the voluntary hospitals as consultants at the municipal hospitals. The arrangements for operative surgery at the municipal institutions and the X ray work of the health and school medical departments are very satisfactory both as regards personnel and equipment. No alterations have yet been made in medical out-relief, and applications both for admission to the transferred institutions and for out-relief are made through the relieving officers. It is proposed ultimately to have separate casual wards near the outskirts of the city.

In March, 1930, a survey of insanitary houses was completed, showing that 3445 houses should be dealt with, either individually or as unhealthy areas. About 60 per cent. of the tenants said they were willing to pay 6*s.* to 8*s.* a week in rent, but in the case of casual labourers, of whom there are a good many working at the docks and for whom it is important to be near their work, there was unwillingness to accept a corporation house except in a suitable district. Most of the condemned houses are within three-quarters of a mile of the Guildhall, where there is a lack of open spaces for recreation. The five-year programme includes 7300 municipal houses, of which 3800 are for new housing and 3500 for slum clearance. The slum clearance schemes will involve the displacement of 14,000 persons and before the end of the year four of the worst areas had been represented. There is still much overcrowding and legal action against it simply results in the transfer of the overcrowding from one house to another. The privy conversion scheme has been completed and is now proceeding in the area of 4033 acres added to the city on April 1st, 1930.

Dr. Frazer notes an increase in both notifications and deaths from diphtheria, 856 cases with 47 deaths. Larger doses and earlier administration of anti-toxin appear to be resulting from the issue of a leaflet to the doctors. Measles was very prevalent during the fourth quarter. There were 100 deaths, of which 86 occurred under 5 years of age, and 14 between 5 and 15 years. During the last three years the cases of enteric fever numbered 4, 7, and 9, but in 1930 the number rose to 35, of which 27 were in the first half of the year. A very full investigation of the circumstances of these cases revealed no cause for the increase. The age-period 15 to 25 has not shared to the same extent as other age-groups in the decline of the death-rate from tuberculosis, and the rate amongst females is higher than amongst males. The cause of this higher mortality among females is still obscure. At the V.D. clinic, diathermy gives most encouraging results in males suffering from orchitis, joint conditions, and prostatic infections, both old and recent.

Portsmouth.

Dr. A. Mearns Fraser says the poor-law medical services have been delegated to the public assistance committee with instructions to report as soon as possible which of the services can be administered by existing committees of the council. At present the appropriation of St. Mary's (poor-law) hospital as a general municipal hospital is being considered. After this has been accomplished the required consultation with the voluntary hospitals will take place. Proposals are in hand: for increasing the beds at the Royal (voluntary) hospital from 190 to 250; for increasing the beds at the isolation hospital from 206 to 290; and at the city mental hospital from 1014 to 1138. It is also proposed to provide a reception ward at St. Mary's hospital and a colony for mental defectives on Portsdown Hill, which will accommodate 320 and ultimately 500 patients. At

present St. Mary's hospital is approved for 29 male and 31 female adult mental defectives. When these proposals are complete and the services effectively coördinated, Dr. Fraser thinks the hospital accommodation provided should be sufficient for the needs of the city. An out-patient clinic for mental disorders is conducted weekly at the Royal Hospital by Dr. T. Beaton, medical superintendent of the city mental hospital.

The allocation of 259 new municipal houses for rehousing the tenants of slum properties has completed the first instalment of the scheme initiated in 1929. In nearly every case the rents for the municipal houses were higher than the tenants had previously paid, yet the arrears at the end of the first year were less than 1 per cent. Closing orders made in 1930 numbered 314 and houses demolished in pursuance of demolition orders numbered 142. Inhabited houses number 57,591 and 1389 are owned by the corporation. The five-year programme includes the erection of 2300 new flats or houses—1000 for new housing, 600 to replace houses in unhealthy areas, 500 for tenants dishoused by demolition orders, and 200 to accommodate aged couples.

Diphtheria notifications numbered 605, and the 16 deaths are the lowest number recorded in the city for over 30 years. An outbreak of enteric fever among children occurred as the result of a Sunday school outing to Stakes Woods on May 29th. The children drank from a stream which ran through the woods outside the city. Those who contracted enteric fever numbered 19, and 5 of them had an attack of gastro-intestinal di-turbance within a day or two of drinking the water, followed by an interval of good health, before the onset of enteric fever. The date of onset of the fever varied from the 13th to the 27th day after drinking the water. Fifty other children who drank the water were attacked by pain, diarrhœa, and sickness. The stream was found to be grossly polluted with sewerage and its condition was reported to the county medical officer of health. In a few cases the illness was serious but all the patients recovered. At the beginning of the year three cases of psittacosis occurred, which were traced to a parrot purchased just before Christmas. The purchaser and his wife were taken ill about Jan. 9th, and the former died on the 18th. The doctor who attended them also contracted the disease and recovered after a grave attack. Dr. A. Cambell continues to report satisfactory results from treating late syphilis. Seventy-one such patients, whose infection dated back from 10 to 30 years, came under treatment. Some of them were parents of children under treatment for congenital syphilis. In all of them the Wassermann blood test was positive.

The municipal maternity home admitted 292 patients, an increase of 86 on the previous year. At the end of July a persistent outbreak of pemphigus neonatorum occurred and the home had to be closed from July 21st to August 11th, the patients being sent to St. Mary's Hospital. No further cases occurred on reopening. The total births numbered 4261, of which midwives attended 3112. The insurance scheme to meet the cost of medical aid was used by 1850 mothers. Medical aid was sent for in 39 per cent. of the insured patients and in 22·5 per cent. of the uninsured.

Two sites for a proposed abattoir were discussed in 1877 and instructions have now been given for the preparation of plans for an abattoir on the western side of the northern road. The public analyst, Mr. R. P. Page, is not satisfied with the jam standards fixed by a joint committee of the Food Manufacturers' Federation and the Society of Public Analysts.

Leeds.

Dr. J. Johnstone Jervis says that notwithstanding acute trade depression, the health of the city was never better than in 1930. The death-rate and infant mortality-rate were the lowest on record, and measles, whooping-cough, influenza, diarrhœa and enteritis, pneumonia and bronchitis caused fewer deaths than in any year of which a record exists. Diphtheria was the only infectious disease which caused anxiety. The number of notifications (994) was the highest since 1911 and the number of deaths (54) was the highest since 1920. There were 42 notifications of small-pox and the death was recorded of a female aged 77, who had been bedridden for years and whose death was certified from cerebral hæmorrhage and senility. It is doubtful if her mild attack contributed in any way towards her death.

But apart from vital statistics, 1930 was a disappointing year to Dr. Jervis. It was expected that the Local Government Act, 1929, would lay the foundation of a unified and improved public health and hospital service in the city. A scheme for the inclusion of the poor-law hospitals in the public health service was adopted by the council in July, but later in the year the decision was reversed and the hospitals remain in the charge of the public assistance committee. For several years a scheme for the utilisation of Elmet Hall for non-pulmonary tuberculosis and other orthopædic work has been under consideration. No progress was made in 1930 in this matter. Another attempt to amalgamate the public health and school medical service came to nothing. The Housing Act of 1930 offered an opportunity of attacking the slum problem, which is, says Dr. Jervis, of considerable magnitude and complexity in Leeds. Dr. Jervis had hoped for a big effort and was disappointed with the meagreness of the five-year programme. This programme, as revised, provides for the erection of 5000 municipal houses, 3000 of which are for new housing, 1820 to replace houses in clearance areas, and 180 to replace individual houses demolished. At the end of the year the houses numbered 128,432, of which 74,805 are back-to-back and 53,627 are through houses. Dr. Jervis divides the former into those built: (1) before 1872, numbering 33,632; (2) from 1872–90, numbering 28,154; (3) from 1890 to 1909, when the Housing Act forbade the building of back-to-back houses, numbering 13,019. He thinks 14,000 to 16,000 of the first group need immediate treatment by demolition or otherwise, and that the remainder should receive attention within ten years. Group 2 are far from ideal and should be improved if possible. Group 3 are satisfactory. Amongst the 53,627 through houses there are some which are just as bad as the worst type of back-to-back and which have been occupied since Leeds was a moderate-sized village. There is considerable overcrowding and an increasing portion of the population is removing into houses let in lodgings. There is no power to require registration of these houses before they are split up, and Dr. Jervis says there must be hundreds of houses let in lodgings in the city unknown to his department.

The city analyst, Mr. C. H. Manley, like his colleague in Portsmouth, objects to the standards for first quality jams suggested by the manufacturers and public analysts.

SCHOOL MEDICAL SERVICE.

Town or borough.	No. on roll.	Average attendance.	Routine inspection.	Special examinations and re-inspections	Percentage of defect.
Cambridge..	6,805	6,170	1,970	2,441	6·3
Swindon ..	9,443	8,302	3,126	9,351	24·1

Cambridge.

THE proportion of children in the town found to require treatment is even lower than last year and is less than one-third the figure for the whole country. The contrast is attributed by Dr. A. Mabel Gurney, assistant medical officer, mainly to differences in procedure. Enlarged tonsils for example, she says, are not at once notified to parents as in need of treatment, as is done in many areas; for it has

been found that the majority of such cases, if kept under observation for a year or so, become normal without any specific treatment. Dr. A. J. Laird remarks that if all these children were added to those requiring treatment the Cambridge figures would be nearly doubled. Many surgeons now wait to see the effects of dental treatment in these cases, although they might not go so far as Dr. A. M. Gurney when she writes: Children with enlarged glands in the neck and who are below par are advised to have cod-liver oil or milk, but in Cambridge are not included in the figures of those requiring treatment. There were in fact 1181 children having oil and malt at school and 800 having milk. But making every allowance for these factors, the lowness of the Cambridge figures suggests either leniency of ascertainment or the presence of some local influence tends to lower the proportion of defects. There are some abnormalities whose incidence is little susceptible to beneficial influences; others, such as malnutrition, might be diminished by the exceeding thoroughness of the dental care and by the work of the day open-air school—the only special school in the borough.

Dental work is described in a special report by Mr. Baird Grandison, L.D.S., assisted by Dr. D. B. Cruickshank, L.D.S. All the children attending the elementary schools have, we learn, the opportunity once annually of dental inspection, and when necessary of dental treatment; 339 treatment sessions were held during the year, and this number does not include the sessions given to the teaching of dental hygiene in the schools. As a result of many years' work the percentage of children with no decayed teeth has risen from 2·4 in 1908 to 37·9 this year. The effect of bad teeth on the general health is not always manifest, for the direct evidence is often only seen in such things as tonsils, adenoids, and enlarged glands; but prolonged septic absorption from bad teeth must place an increasing strain on the mechanism of the body which sooner or later may fail to respond.

Swindon.

Dr. Dunstan Brewer states that the year 1930 was a quiet one for the school medical service, and this made it possible to catch up certain arrears accumulated during the difficult year 1929. A rearrangement of the school clinics in accordance with the growth of the borough is under consideration. During the year X ray treatment of ringworm had to be discontinued owing to difficulties with the machinery; happily this was of little consequence, inasmuch as at the end of 1930 there remained only 21 known cases. The year was a bad one for rheumatism, of which nine children died, a larger number than in any previous year. Swindon is included in the Bristol scheme for the supervision of rheumatic heart disease, Dr. C. E. K. Herapath paying periodical visits. There is a good mental deficiency school in the borough but no other special schools, not even an open-air school. Four inquiries are in progress: (1) into the distribution and causes of thyroid disease; (2) into the histories and environment of rheumatic children; (3) into the pulse-rate and blood pressure during school age; and (4) into the blood changes of childhood. Thyroid enlargement is common, and is not infrequently associated with exophthalmic goitre and (paradoxically) with symptoms of hyperthyroidism. Dr. Brewer suggests that this puzzling combination found in older children is due to a natural sequence of events. He writes:

> "Poverty of iodine intake in the early years of infancy causes the thyroid to enlarge. If this poverty is continued, or if severe, and not treated, it becomes persistent, and at puberty or afterwards, when the child's diet generally contains a reasonable amount of iodine, the enlarged thyroid over-secretes during the negative phase of the monthly cycle."

The last inquiry is the most interesting. If status lymphaticus is a myth, the sudden calamities which it was supposed to cause are most unpleasantly real and in many cases seem to be connected with the "phenomena of lymphism." In Swindon it is held that the removal of tonsils and adenoids is not free from danger when the polymorphonuclear count is below 3000 per c.cm. and the lymphocytes exceed them numerically. On this assumption the operation has not been permitted in Swindon during the past ten years until the blood-count has been found to be satisfactory; no case so sanctioned has given rise to anxiety.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 24th, 1931.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 39 (last week 41); scarlet fever, 1771; diphtheria, 1119; enteric fever, 43; pneumonia, 677; puerperal fever, 24; puerperal pyrexia, 85; cerebro-spinal fever, 24; acute poliomyelitis, 11; acute polioencephalitis, 2; encephalitis lethargica, 12; continued fever, 1; dysentery, 15; ophthalmia neonatorum, 84. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 27th–28th was as follows: Small-pox, 78 under treatment, 4 under observation (last week 69 and 3 respectively); scarlet fever, 1743; diphtheria, 1492; enteric fever, 15; measles, 163; whooping-cough, 363; puerperal fever, 13 (plus 10 babies); encephalitis lethargica, 220; poliomyelitis, 5; "other diseases," 159. At St. Margaret's Hospital there were 7 babies (plus 3 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 21 (1) from measles, 6 (3) from scarlet fever, 17 (2) from whooping-cough, 25 (7) from diphtheria, 63 (24) from diarrhœa and enteritis under two years, and 37 (5) from influenza. The figures in parentheses are those for London itself.

Bristol reported the only fatal case of enteric fever. Seven deaths from measles were reported at Stoke-on-Trent, 2 each at Manchester, Salford, Middlesbrough, and Stockton-on-Tees. Liverpool reported three deaths from whooping-cough, Bristol 2. Diphtheria claimed 3 victims at Kingston-on-Hull, 2 at Manchester. Diarrhœa was credited with 6 deaths at Liverpool, 4 at Manchester, 3 each at Stoke-on-Trent, Salford, and Leeds.

The number of stillbirths notified during the week was 254 (corresponding to a rate of 40 per 1000 births), including 35 in London.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

F. M. Duthie to be Surg. Lt.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. R. Wear to be Surg. Lt.-Comdr.
Proby. Surg. Lt. R. H. Longmoor to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. H. C. Hildreth, having attained the age for compulsory retirement, is placed on retd. pay.

The undermentioned Cols., late R.A.M.C., to be Maj.-Gens.: P. H. Henderson and to be supernumerary; J. F. Martin, vice Maj.-Gen. L. Humphry (decd.).

Lt.-Col. T. S. Dudding to be Col.

Majs. (temp. Lt.-Col.) J. A. Renshaw, W. A. Spong, and H. P. Hart to be Lt.-Cols.

Maj. R. F. O'T. Dickinson to be temp. Lt.-Col.

ARMY RESERVE OF OFFICERS.

The following, having attained the age-limit of liability to recall, cease to belong to the Reserve of Officers: Lt.-Col. D. G. Carmichael; Maj. R. B. Black.

TERRITORIAL ARMY.

Lt. E. D. Gray to be Capt.

INDIAN MEDICAL SERVICE.

Lt.-Col. Sir Frank P. Connor to be Col.

Lts. V. E. M. Lee, G. B. W. Fisher, E. P. N. M. Early, and W. McAdam to be Capts.

ROYAL AIR FORCE.

F. I. G. Tweedie is granted a short service commission as a Flying Officer for three years on the active list.

CORRESPONDENCE

A CHRISTMAS APPEAL.

To the Editor of THE LANCET.

SIR,—For many years I have asked members of the medical profession to subscribe at this time of the year in order that the Royal Medical Benevolent Fund may distribute Christmas gifts. These gifts are made to poor widows and daughters of our professional colleagues and also to medical men who are infirm or unable to work through illness, and whose savings are exhausted.

I know the times are difficult for everyone, but I feel confident that those who can spare even a small donation will do so again this year so that even greater hardship should not fall on those least able to bear it. It has been the hope of the committee to distribute 30s. to each of the annuitants and the poorest of the grantees at Christmas. I am most anxious that none should look in vain this Christmas for the gift which can bring a few additional necessities of life and extra comfort to their homes. It is difficult for us to realise that these "homes" are often only a bed-sitting room of a very cheap rental.

May I ask your readers to forward their donations however small they may be? Cheques, postal orders, or even stamps should be addressed to the Hon. Treasurer, Royal Medical Benevolent Fund, 11, Chandos-street, Cavendish-square, London, W. 1.

I am, Sir, yours faithfully,

THOMAS BARLOW,
President, Royal Medical Benevolent Fund.

Oct. 21st, 1931.

SHOULD HIGH BLOOD PRESSURE BE REDUCED?

To the Editor of THE LANCET.

SIR,—Prof. Rudolf suggests that the accumulation of undesirable material in cases of hypertony after reduction of arterial pressure is due to the impairment of the kidney from damage by sulphur. The following facts prove this contention to be untenable.

1. Broadly the same results were obtained after the administration of erythrol tetranitrate (half a grain every three hours), a drug which cannot possibly impair the kidney.
2. Cases of hypertension in which the arterial pressure became low solely as a result of heart failure show abnormal increase in blood-urea, &c., an increase which disappears when the arterial pressure regains its usual high level.
3. In cases of heart disease with normal kidneys there is an accumulation of urea, &c., as a result of the lowering of arterial pressure brought about by heart failure. The increase of blood-urea in our cases was without a doubt due solely to the lowering of the arterial pressure.

He has disregarded our findings in regard to the cardiac function which is definitely impaired as a result of the treatment. Actually our treatment has brought about a condition which is very much akin to heart and kidney failure, and it is difficult to believe that in the routine treatment of uncomplicated high blood pressure we ought to aim to impair the cardiac and renal function.

There remain two complications of hypertony in which a reduction of pressure may be desirable—viz., threatening heart failure and apoplexy. In regard to the former, we must ask ourselves how a case of threatening heart failure will benefit by a treatment which impairs coronary circulation, even if it lessens the resistance against which the heart is working. There does not seem to be even a clear indication for the lowering of arterial pressure in cases of threatening apoplexy, if it is true that the majority of first attacks are not due to hæmorrhage but to thrombosis. The latter is usually the result of insufficient pressure, and therefore a rise in pressure seems to be indicated in threatening apoplexy. In my experience dizziness too is due to the fact that the pressure is not sufficiently high in cerebral circulation.

We all agree that high blood pressure ought to be done away with where the causal factor can be dealt with, but to aim at reducing pressure simply as a symptomatic treatment is a different proposition altogether. After experimenting with various methods of reducing pressure I only employ now mistura alba as routine treatment in cases of uncomplicated hypertony. In suitable cases the drinking of large quantities of water proves very beneficial, and so does exercise.

The only cases rejected from our series are cases which showed a pronounced variability in pressure. I am not in a position to say whether the causal factor of our cases was nervous, toxic, or organic, for I do not believe that it is generally possible to make such distinctions by ordinary clinical methods. I am not even sure whether such clean-cut clinical types really exist. The point I should like to make, which applies to all other branches of medicine, as well as to hypertension, is that it is not safe to interfere with an adaptation unless the mechanism of this adaptation is thoroughly well known. In the absence of such thorough knowledge interference is undesirable.

I am, Sir, yours faithfully,

Liverpool, Oct. 29th, 1931. I. HARRIS.

GAS-OXYGEN ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—Dr. Macklin's interesting and able paper in your issue of Oct. 24th (p. 897) raises theoretical questions of fundamental importance, in so far as the cell-asphyxiation theory of the nature of anæsthesia is made to fit in with the practical results of gas-oxygen administration. Arguing from this theory, Dr. Macklin arrives at the conclusion that there is no theoretical objection to cyanosis during gas-oxygen anæsthesia, so long as it is due to deliberately caused anoxæmia and not to congestion. From the practical point of view, any anæsthetist accustomed to the use of gas-oxygen knows that the main objection to this carefully regulated cyanosis is the immediate and almost automatic protest of the surgeon, to whose mind any sign of blueness is a presage of disaster, unless at once abolished. The patient can never be shown to suffer. One may hope that Dr. Macklin's paper will make more generally understood this essential difference between deliberately caused cyanosis and that due to respiratory obstruction or failure.

So far so good. But with Dr. Macklin's advocacy of gas-oxygen alone for so wide a range of cases I cannot agree. Granted that there is no disadvantage to the patient in pushing the gas to the point of anoxæmia, the results of so doing from the point of view of the surgeon are simply not good enough, since so experienced an administrator as Dr. Macklin himself admits that he is far from being satisfied with one case in three of upper abdominal operations. The ideal anæsthetic is yet to be found, but most

anæsthetists in this country would probably agree that the very much greater certainty of results obtained either by some form of premedication, or by the addition of small quantities of ether (and they are small), to the gas-oxygen greatly outweighs any minor disadvantages of doing so.

I am, Sir, yours faithfully,

London, W., Oct. 27th, 1931. DOUGLAS BELFRAGE.

To the Editor of THE LANCET.

SIR,—With regard to your comments (p. 921) on my paper, may I say that to a certain extent I heartily agree. I was however more concerned with justifying the asphyxial element than with a discussion of the practical problem of securing relaxation in operations on the upper abdomen. The latter, in my opinion, is a problem of the highest importance which might form a useful subject for discussion at combined meetings of surgeons and anæsthetists. With regard to the use of local agents, as I said in my paper, "the anoci-association methods have much to recommend them, but certainly have not found universal favour with surgeons in this country." I have for a long time insisted that to poison every cell of the body cannot be regarded as the ideal way to secure anæsthesia of a localised area, and I should like to see local anæsthetics much more freely used.

As to basal narcotics, it must be remembered that they are poisons which are effective only because they have a depressant action on cell activity, and this action is apt to be prolonged much more than is necessary or desirable. Certainly an anæsthetist must be able to give the surgeon sufficient relaxation to enable him to perform the operation with the greatest speed and the least amount of trauma, but in my judgment, having regard to the patient's ultimate welfare (the only thing that matters), he must aim to do this with the least anæsthetic effect, limiting as much as possible both depth and duration. I have the feeling that we all, particularly surgeons, are apt to concentrate too much on how to secure the maximum relaxation at the time of operation, and not enough on end-results.

Personally, in upper abdominal cases, as with all other cases, I like to see the patient come out of the anæsthetic as quickly as possible. I know then that cells and tissues are recovering their tone, and that defensive and repair processes will rapidly come into action just when the patient, shocked and cooled, most requires them to prevent respiratory complications and persisting acidosis, with those distressing symptoms, cough and vomiting.

In my series of upper abdominal cases I think I could claim that the results in one-third were excellent, in another third satisfactory; but I must admit that in the final third the relaxation secured at the time of operation was by no means perfect. There were however two factors other than the inadequacy of the agent which entered into these results: first, I was buying my experience; and, secondly, I was experimenting with apparatus. With greater experience, an effective apparatus that does not unduly distract attention from the patient, and reliable gas-cylinders (which the makers have not yet given us), I am quite sure that much more consistent results at the time of operation could be secured with gas-oxygen, especially if combined, as you suggest, with effective local injections.

Light preliminary medication is undoubtedly of value, but I do not think that profound or prolonged basal narcosis forms any part of the solution of the problem when the anæsthetic is considered from start to finish as a general whole.

I am, Sir, yours faithfully,

Dundee, Oct. 26th, 1931. A. H. MACKLIN.

DERMATITIS FROM ORANGES AND LEMONS.

To the Editor of THE LANCET.

SIR,—Referring to the useful paper by Dr. Sibyl G. Horner, it is interesting to note that her conclusions are supported by previous experimenters. Müller,[1] in 1926, noted that the "essential oil" in the rind of the orange alone provoked a dermatitis. The subject was discussed, in 1930, in persons handling lemons, by Shapiro.[2] This year Fanburg and Kaufman[3] satisfactorily show that the juice of the flesh is comparatively harmless; on the contrary the essential oil of lemons readily brings out eruptions, particularly in susceptible individuals. Dr. Horner has advanced our knowledge by showing the close relationship between the irritants of the citrus and pinus group of plants.

I am, Sir, yours faithfully,

Wigan, Nov. 2nd, 1931. R. PROSSER WHITE.

PSYCHOLOGICAL CLINICS FOR CHILDREN.

To the Editor of THE LANCET.

SIR,—The annotation under the above heading in your issue of Sept. 24th is an admirable and timely example not merely of the interest that the medical press takes in the progress of medicine in this country, but of the watch and ward it keeps over the development of new trends. All too little is known by medical men and women as a whole of the work that is being done not only by the Child Guidance Clinic, the Jewish Health Organisation's Clinic, and the National Institute of Child Psychology, but also by the Institute of Psychological Medicine (formerly the Tavistock Clinic), and the departments established to deal with maladjusted children at Guy's Hospital, Great Ormond-street Hospital, University College Hospital, the Maudsley Hospital, and elsewhere, which are unenumerated in your note. Until, indeed, the nature and the differences of this work are familiar to the medical profession, misconceptions must inevitably arise.

Of this fact there could perhaps be no better example than your appreciative and yet chastening note. We kiss the rod with the better grace because the genuflexion offers us the opportunity to remove more than one misconception as to the aims and objects of the National Institute of Child Psychology. (1) No proposal has ever been made by the institute to establish any course of instruction for social workers; (2) the institute does not intend to issue certificates of proficiency either to doctors or to social workers; (3) no claim has ever been made by the institute—nor will it ever be—to decide who shall and who shall not be competent to direct work in child psychology. It is true that medicine is already overburdened with degrees and diplomas. Far be it from us to add to their number. Some recognition of satisfactory study is, however, the due of any serious student attending a 12 months' course of instruction; and the certificate which the institute proposes to give is designed to afford this recognition and, at the same time, as is expressly stated in the syllabus, to form an entrance qualification.

[1] Finger Dermatitis from Peeling Oranges, Münch. med. Wochenschr., May 21st, 1926, p. 804.
[2] Vrach. Dielo, Sept. 1st, 1930, p. 1240.
[3] Jour. Amer. Med. Assoc., August 8th, 1931, p. 390.

We are interested in your limitation of the field of psychological medicine in its relation to children to behaviour disorders and juvenile delinquency. This is in line with the view of the Child Guidance Council as expressed in their official pamphlet,[1] but not of the institute. In the field covered by the work of the institute are included many forms of minor physical ailment, the psychoneuroses of childhood, and any form of difficulty experienced by children in their adjustment to life or to their own emotional states, for which adequate provision is not already successfully made by ordinary hospital treatment or social agencies.

I am, Sir, yours faithfully,

MARGARET LOWENFELD,
Hon. Medical Director, National Institute of Child Psychology.

19, Warwick-crescent, W., Nov. 3rd, 1931.

[1] Child Guidance by Team Work. By William Moodie, M.D. M.R.C.P., D.P.M. The Child Guidance Council.

POST-WAR NEURASTHENIA AND ABREACTION.

To the Editor of THE LANCET.

SIR,—In to-day's issue of THE LANCET I followed with interest and pleasure Dr. Eric Coplan's description of the post-war neurasthenic and shell-shock cases he dealt with at the ex-Services Welfare Society; but I found it difficult to agree with his remarks on the treatment of these cases. I am tempted to ask if he has witnessed—as I have—the dramatic effect of a typical abreaction when such a psychopathic case relives the trauma which has caused these symptoms; and if he has watched the after-effects of this abreaction, when the patient regains quietness and stability, and pursues his daily business to his own and his employer's satisfaction.

I am, Sir, yours faithfully,

M. L. DOBBIE-BATEMAN.

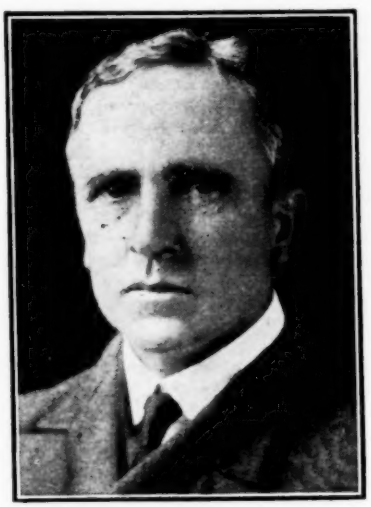
London, S.W., Oct. 31st, 1931.

OBITUARY

ROBERT GORDON CRAIG, M.B., Ch.M. Syd., F.R.A.C.S.

Dr. Gordon Craig, news of whose death has reached this country, was a noted figure in Australian surgery, which he did much to advance.

Robert Gordon Craig was the eldest son of Capt. Robert Craig, and a nephew of Dr. John Macmillan Brown, Chancellor of the Senate of the University of New Zealand. Born in Ayrshire in 1870, he was taken to Australia at the age of 8 years and received his early education at Sydney Grammar School. Returning to George Watson's College, Edinburgh, in his teens, he matriculated in Edinburgh before entering Sydney University as a medical student, where he qualified in 1894, being awarded the University gold medal at graduation. In 1901 he was elected to the honorary staff of the Royal Prince Alfred Hospital in Sydney, on which he served for nearly 30 years. During the war he was colonel in charge of the first Australian hospital ship *Karoola*, which was organised and fitted in England under his supervision. He took part in the operations around Gallipoli, and made numerous trips between Egypt and Australia. After the war his interest began to focus specially on genito-urinary surgery, and it was due to his efforts that a department of urogenital surgery was established at the Prince Alfred Hospital. In 1926, on his own suggestion, he relinquished the post of honorary surgeon for that of honorary urological surgeon, in order to take charge of the department which he had created and to which he contributed in all about £20,000, together with his own fully equipped private laboratory. He also made substantial gifts for research work and for a post-graduate fellowship course in urology.



DR. R. G. CRAIG.

Gordon Craig's name will, however, chiefly be associated with the Royal Australasian College of Surgeons, of which he was a foundation fellow, and in the creation of which he took a very active part. In 1917 he was president of the British Medical Association in New South Wales, and in 1924 he was elected a fellow of the American College of Surgeons. A great traveller, he used to make periodic trips to England, America, and the Continent, mainly for the purpose of study whilst abroad, and to keep himself in touch with the latest developments in surgery. A versatile man, with a wide general knowledge of medicine, he had an unusual gift for friendship, while his enthusiasm for all kinds of altruistic work was infectious. Much of his leisure time he gave to golf, and for many years he was a prominent yachtsman, owning and racing successfully many different crafts as a member of the R.S.Y.S.

Dr. Craig is survived by his widow, who before her marriage was Miss Connon of New Zealand, and by two daughters.

SHOLTO DOUGLAS, M.D. Oxf., M.Sc. Birm.,

PROFESSOR OF PATHOLOGY, UNIVERSITY OF SHEFFIELD.

THE news of the sudden death at Llandudno, on Oct. 30th, of Prof. Sholto Douglas came as a painful shock to his colleagues in Sheffield. Although he had been laid up for some weeks, the latest news was that he was progressing favourably, and it was expected that he would soon be back at work.

James Sholto Cameron Douglas was born at Leicester in 1879, being elder son of Mr. Claude Douglas, F.R.C.S., consulting surgeon to the Leicester Infirmary, and brother of Dr. C. G. Douglas, F.R.S., Fellow and tutor in natural science at St. John's College, Oxford. Sholto went to Wyggeston's Grammar School, and from there to Haileybury College, from which he gained an open science exhibition to Christ Church, Oxford. Graduating in 1902, he entered St. George's Hospital for his clinical study, becoming Webb scholar in bacteriology, and

taking his medical degree three years later. For a while he remained at the hospital as assistant curator of the museum, and then studied abroad, mostly at Copenhagen and Dresden, with a Radcliffe travelling fellowship. In 1907 he became lecturer in pathology at the University of Birmingham, being called four years later to the same post at Manchester. It was there that he had a serious illness which left its mark on his naturally fine physique. It had hit him harder than was realised at the time, and although when appointed to the Joseph Hunter chair of pathology at Sheffield in 1915, he was able to carry out the heavy duties that this involved, especially with the 3rd Northern General Hospital during the war, and later to add to it those of Dean of the Faculty for many years, yet it was evident that he was always working to the limit of his strength, and from time to time he had to rest and take things quietly. There is no doubt that this accounts for the comparatively scanty output of original work during his latter years, not in any way commensurate with the promise of his earlier days. While he published no text-book or systematic work, Douglas contributed a number of short papers to medical and pathological journals on subjects on which he was working. His early interests included a study of cardiographic tracings from the base of the human heart, of the spread and control of diphtheria epidemics, and of the invasion of the pericardium by malignant tumours. Later he was chiefly concerned with immunological problems. In association with Prof. Dreyer he wrote on the absorption of agglutinins and other immune bodies by charcoal; with Prof. Boycott on the composition of tissue fluids and the regulation of blood volume in normal and nephritic animals.

As a teacher Sholto Douglas was thorough, concise, and clear. His department was a model of organisation, and during his occupancy of the chair of pathology the bonds between the University of Sheffield and the various hospitals of the city and district were tightened and strengthened. His opinion was widely sought and his sound judgment was justly valued. His quiet unostentatious work as Dean of the Faculty for the last ten years was done with characteristic care and thoroughness. One of his colleagues writes of his generous, unselfish, and gentle nature. Always ready and willing to help in any difficulty, he spared neither time nor trouble in so doing. He made no enemies, and his loss will be long and deeply felt by his associates.

Prof. Douglas married in 1911 Mary Victoire, daughter of Mr. Richard Brice, of Burnham, Somerset.

JAMES T. C. NASH, M.D. Edin., D.P.H.

Dr. Nash, who died in London on Oct. 17th, had retired three years ago from the county medical officership for Norfolk which he had held for 20 years. Born in January, 1865, at Ootacamund, South India, son of James Tavenor Nash, and educated privately, he took the early part of his medical course at Madras, where he was prizeman in surgery, qualifying at Edinburgh University in 1886. After taking his M.D. and the D.P.H. Camb., he became lecturer in bacteriology at King's College, London, and for a time acted there as professor of hygiene. His first public health appointment was a short one at Brighton, going on to Southend-on-Sea, where he was appointed medical officer of health, with charge of the sanatorium and small-pox hospital. His well-directed interest in the bacteriology of the shell-fish beds brought him for a time into conflict with local interests. In 1908 he became the first medical officer for Norfolk, and shortly after taking up this appointment, school medical inspection was added to his official duties. With a staff of two medical inspectors and two wholetime nurses he developed a very efficient system which included one or two characteristic features: children with ringworm were allowed to attend school provided they wore linen caps and followed certain definite instructions, and head teachers in the county had to notify infectious disease both to district medical officers and to the central office. In 1913 Nash was appointed to deliver three lectures under the Chadwick Trust, and in these he attempted to deal philosophically with the problems of epidemics in a semi-historical manner. The trend of his argument was the evolution of specific pathogenic properties in disease-causing organisms; he was unable to believe in the permanence of characters and properties in bacteria in the same way as they exist in animals and plants of more highly developed organisation, insisting that insanitary conditions may play a part in giving pathogenic properties to ordinary saprophytic organisms. In 1920 he was able to satisfy his cherished wish of having a county laboratory, bacteriology having always been to him a major interest. Unfortunately, his health, following a slight stroke in 1913, led to his retirement at the age of 63. He left the county with the goodwill of all who had worked under him, for he was a good and reasonable chief. Outside his busy professional life he was a freemason, and keen on various field sports, including golf, cricket, and tennis, in all of which he had obtained distinctions.

THE LATE DR. RUTHERFORD MACPHAIL.

Sir John Collie writes: "Others have testified to the professional abilities of Samuel Rutherford Macphail; may I add a word or two with regard to the loss his many friends have sustained? Macphail had a strong personality combined with a gentle retiring disposition; he was charitable in thought, word, and deed — I cannot remember his once saying an uncharitable word about anyone, and I knew him well for nearly half a century. Those who mourn his loss feel how true it is that 'to live in the hearts of those we leave behind is not to die.' Some natures owe their power of impressing us by one quality, some to another; Macphail owed it to the quality of love. There are more saints walk this earth than we sometimes think."

PARLIAMENT

NOTES ON CURRENT TOPICS.

THE NEW PARLIAMENT.

THE newly elected House of Commons assembled on Tuesday, Nov. 3rd, for the purpose of electing the Speaker. Captain FITZROY was re-elected to that office on the motion of Sir G. COURTHOPE (Unionist), seconded by Mr. WILL THORNE (Labour). On the following day, the King's approbation of the Speaker having been intimated, the House of Commons proceeded to the ceremony of swearing in the members. After this was completed the House adjourned until Nov. 10th, when Parliament will be opened in State by His Majesty. The profession of medicine and surgery is again well represented in the new Parliament.

MEDICAL MEN IN PARLIAMENT.

Acknowledgments of photographs are due to—

Vandyk (Dr. Cooke); *H. V. Richards* (Dr. Hillman); *A. W. Sargent* (Dr. Howitt); *Lafayette* (Dr. O'Donovan; *Philipson & Son* (Dr. Leech); *Elliott & Fry* (Dr. Worthington).

DR. J. D. COOKE
(Hammersmith: South).

DR. W. J. O'DONOVAN
(Stepney: Mile End).

MAJ. WALTER E. ELLIOT
(Glasgow: Kelvingrove).

COL. F. E. FREMANTLE
(Hertford: St. Albans).

SIR E. G. GRAHAM-LITTLE
(London University).

MR. H. C. HASLAM
(Lincolnshire: Horncastle).

DR. G. B. HILLMAN
(Wakefield).

DR. A. B. HOWITT
(Reading).

ANALYSIS OF VOTING.

THE list of medical candidates here given shows the individual position at the poll and the number of votes registered. The sign † indicates membership of the last House of Commons, ‡ membership of a previous Parliament, and * that the candidate has contested this or some other seat before.

Constituency.	Name.	Position at poll.	Votes registered.
Universities.			
London	Sir Ernest Graham-Little†	1	(1) Ind. C., 8461 (2) Non-par., 3134
Queen's, Belfast..	Prof. T. Sinclair†	U.	C.
London Boroughs.			
Bermondsey (West)	Dr. Alfred Salter†	1	(1) Lab., 10,039 (2) C., 9,948 (3) Com., 873
Camberwell (Dulwich)	Dr. C. R. Cooke-Taylor*	3	(1) C., 21,752 (2) Lab., 4,747 (3) L., 3,924
Hammersmith (South)	Dr. J. D. Cooke*	1	(1) C., 21,018 (2) Lab., 8,390
Paddington (North)	Miss Esther Rickards	2	(1) C., 23,901 (2) Lab., 9,597
Stepney (Mile End)	Dr. W. J. O'Donovan	1	(1) C., 12,399 (2) Lab., 9,738
Wandsworth (Central)	Sir Henry Jackson‡	1	(1) C., 19,159 (2) Lab., 7,512 (3) N.P., 424

(Continued at foot of next page.)

DR. JOSEPH HUNTER
(Dumfriesshire).

SIR HENRY JACKSON
(Wandsworth: Central).

MEDICAL MEN IN PARLIAMENT.

Acknowledgments of photographs are due to—

Bassano (Maj. Elliot); *Los Angeles Studios* (Dr. Hunter); *Alfred Haley* (Dr. Morris-Jones); *Allison* (Prof. Sinclair).

DR. J. W. LEECH
(Newcastle-on-Tyne: West).

DR. J. H. MORRIS-JONES
(Denbigh: Denbigh).

DR. ALFRED SALTER
(Bermondsey: West).

PROF. THOS. SINCLAIR
(Queen's University, Belfast).

DR. J. H. WILLIAMS
(Carmarthen: Llanelly).

DR. J. V. WORTHINGTON
(Gloucester: Forest of Dean).

ANALYSIS OF VOTING (*continued*)—*See also foot of opposite page.*

Constituency.	Name.	Position at poll.	Votes registered.	Constituency.	Name.	Position at poll.	Votes registered.
English Boroughs.				Glasgow (Kelvingrove)	Dr. Walter E. Elliot†	1	(1) C., 21,481 (2) Lab., 12,415
Ilford	Dr. Russell Thomas	3	(1) C., 43,737 (2) Lab., 12,173 (3) L., 9,179	*English Counties.*			
Newcastle-on-Tyne (West)	Dr. J. W. Leech*	1	(1) C., 28,560 (2) Lab., 13,514	Bucks (Wycombe)	Dr. L. Haden Guest‡	2	(1) C., 41,208 (2) Lab., 10,821
Reading ..	Mr. Somerville Hastings†	2	(1) C., 34,439 (2) Lab., 19,277	Gloucester (Forest of Dean)	Dr. J. V. Worthington	1	(1) Nat. Lab., 14,815 (2) Lab., 13,291
Wakefield ..	Dr. A. B. Howitt*	1	(3) N.P., 861	Hants (Winchester)	Dr. R. A. Lyster*	2	(1) C., 31,831 (2) Lab., 13,529
	Dr. G. B. Hillman*	1	(1) C., 15,881 (2) Lab., 11,774	Herts (St. Albans)	Dr. F. E. Fremantle†	1	(1) C., 36,690 (2) Lab., 10,289
Scottish Burghs.				Lincoln (Horncastle)	Mr. H. C. Haslam†	1	(1) C., 18,100 (2) L., 8,788
Edinburgh (East)	Dr. Drummond Shiels†	2	(1) L., 17,372 (2) Lab., 10,244 (3) Ind., 2,872	Somerset (Taunton)	Dr. F. G. Bushnell*	2	(1) C., 22,564 (2) Lab., 8,367

MEDICAL NEWS

Royal College of Physicians of London.

At a meeting of the College on Oct. 29th, with Lord Dawson, the President, in the chair, the following candidates, having satisfied the Censors' Board, were elected to the membership:—

Frederick Gerard Allison, M.D., Manitoba; James Hilton Bentley, L.R.C.P.; Trevor Laurence Bomford, M.B. Lond.; Rupert Pritchard Picton Davies, M.D. Lond.; Laurence Bedford Elwell, M.B., Sydney; Maurice Rolfe Vickers Ford, L.R.C.P.; Ivor John Franklen-Evans, M.B. Camb.; Frank Alfred Gaydon, M.B. Lond.; Isaac Gordon, M.B. Lond.; Ram Kumar Goyal, M.B., Punjab; Richard Fairfax Tukino Grace, M.D. Edin.; Mohan Lal Gujral, M.B., Punjab; Arthur Sandford Hoseason, M.B. Lond.; Esther Margaret Killick, M.B. Leeds; Frank Patrick Lee Lander, M.B. Lond.; Mahomedali Ladhabhoy Mistry, M.D. Lond.; Francis Alan Richards, M.B. Camb.; Mahmoud Salah-eldin, M.B., Cairo; Henry Armand Hugh Selbourne, M.B. Lond.; Samuel Shone, M.B. Lond.; Felix Smith, M.D. Birm.; Raghubansa Kishore Tandon, M.B., Lucknow; Shripad Shivarao Ugrankar, M.B., Bombay; and Khushwant Lal Wig, M.B., Punjab.

Licences to practise were conferred upon 120 candidates (109 men and 11 women) who have passed the final examination of the Conjoint Board and have complied with the by-laws of the College. The following are the names and medical schools of the successful candidates:—

A. Rasheed, Punjab and London; S. S. Alam, M.B. Punjab, Univ. Coll.; G. T. Allen, St. Thomas's; M. W. Allen, Middlesex; A. B. Anderson, Camb. and Univ. Coll.; A. A. Anderson, M.D., Western Univ., London; A. Ascher, Long Island and King's Coll.; T. J. Ashley, Cardiff and St. Mary's; Kathleen W. Aylwin-Gibson, Liverpool and Westminster; R. Baker, Leeds; E. T. Bannister, Univ. Coll.; P. S. Bassalvi, M.B. Punjab, Middlesex; E. H. S. Bebb, London; C. M. Bell, St. Bart.'s; E. A. R. Berkley, Guy's; J. B. Bishop, Oxford and St. Thomas's; M. Bloom, Manchester; H. E. Bonnell, King's Coll.; J. R. Braybrooks, Oxford and King's Coll.; F. J. Burke, Liverpool; T. E. Burrows, Camb. and St. Bart.'s; H. W. Cowen, Camb. and Univ. Coll.; R. A. F. Creet, St. Thomas's; C. J. N. Davis, Bristol; N. E. D. De Silva, Univ. Coll.; A. H. Dunkerley, Camb. and Manchester; B. Dunkerley, Manchester; Joanna M. Egerton, King's Coll.; A. G. Evans, Birmingham; M. Farooq, M.B. Bombay, St. Bart.'s; J. W. H. Foy, Liverpool; S. Gay French, King's Coll.; J. H. L. Gilmore, Camb. and St. Thomas's; G. P. Gladstone, London; F. R. Glover, London; P. W. Godfrey, Leeds; A. J. B. Goldsmith, Middlesex; G. H. Greenway, Guy's; H. N. Gregg, M.P., Birm.; W. Hall, Manchester; G. W. Hall-Smith, Camb. and Guy's; R. A. E. Hammond, Camb. and Guy's; Margaret Hardwick, Leeds; Sheila M. Harper, Liverpool; Florence D. Hawes, Royal Free; F. Hilmy, Durham; L. A. Hiscock, St. Bart.'s; Nora A. Hodgkinson, Leeds; P. A. Hubbard, Univ. Coll.; Daisy G. Iliff, B.A. Lond., King's Coll.; J. A. James, Cardiff and Charing Cross; W. H. G. Jessop, Camb. and Univ. Coll.; D. E. V. Jones, King's Coll.; E. Kaminsky, Univ. Coll.; A. A. Kidvai, Bombay and King's Coll.; Victoria H. King, Royal Free; A. W. Langford, Camb. and St. Bart.'s; H. H. Langston, St. Bart.'s; N. R. C. Lansdell, King's Coll.; B. Lawn, Camb. and St. Thomas's; J. Littlejohn, St. George's; A. D. Low, St. Mary's; J. M. Low, St. Mary's; R. S. C. McDade, Camb. and St. Thomas's; J. G. Madden, Middlesex; G. S. Malik, Univ. Coll.; M. H. Masina, Camb. and St. Bart.'s; Sosa Matthew, Punjab and Royal Free; M. T. Maung, M.B. Rangoon, Guy's; C. F. Mayo-Smith, St. George's; S. G. Meanley, Leeds; T. F. Miles, St. Thomas's; A. Miller, Witwatersrand and Guy's; I. D. Monger, Cardiff and Charing Cross; M. Myers, Durham and Univ. Coll.; P. H. Nankivell, Middlesex; M. W. C. Oldfield, B.M. Oxf., Leeds; W. H. Owles, Oxford and Guy's; G. T. Partridge, Camb. and St. Bart.'s; R. C. T. Pearson, Camb. and St. Thomas's; T. J. Phillips, Univ. Coll.; P. Pringle, King's Coll.; Dorothy M. M. Rees, Charing Cross; L. Rees, Cardiff and St. Thomas's; G. O. S. Reid, St. Mary's; W. F. Richards, Camb. and St. Bart.'s; B. Roberts, Univ. Coll.; I. C. Robertson, Camb. and St. Thomas's; P. Rosenfeld, St. Bart.'s; M. G. Ross, M.B., Leeds; J. T. Rowe, St. Bart.'s; C. Rutter, Guy's; C. R. Sadler, Camb. and St. Thomas's; I. N. Samuel, Middlesex; Mary A. Saunders, King's Coll.; G. Scott, Camb. and Middlesex; A. Shafi, M.B. Punjab, Charing Cross; H. Shoukry, Birmingham; A. Shufleder, Leeds; H. Simpson, Manchester; K. Singh, Bombay and St. Thomas's; R. E. G. Smith, Birmingham and Charing Cross; P. Q. M. Spaight, St. Bart.'s; G. Steane, M.B., Birm.; D. Stone, Cardiff and Guy's; G. L. Stroud, Oxford and St. Mary's; I. Sutton, M.B., Manchester; J. T. C. Taylor, St. Bart.'s; G. W. Thomas, Camb. and St. Bart.'s; H. C. Wadge, Oxford and St. George's; W. W. Walther, Univ. Coll.; R. A. Wesson, Univ. Coll.; H. G. Williams, St. Thomas's; R. N. H. Williams and T. P. Williams, Camb. and St. Bart.'s; D. S. P. Wilson, M.B., Dub.; A. L. Wingfield, St. Thomas's; J. M. Wingfield, Birmingham and St. Mary's; C. E. R. Wood, Camb. and Guy's; and R. B. D. Wright, St. Mary's.

A supplementary list of licentiates is being issued later for candidates whose examinations were not complete when the above list was compiled.

Diplomas in Public Heath were conferred (jointly with the Royal College of Surgeons) upon the following 19 candidates:—

M. Akram, E. A. Aslett, R. S. Baindur, Eleanor M. Carless, R. Cove-Smith, J. Cribbin, J. H. Dancy, E. C. Downer, E. Grundy, P. L. Khosla, J. R. Macdougall, C. V. Macnamara, R. D. Munshi, J. L. Newman, Ajit K. Sen, Amiya K. Sen, H. B. Swift, I. Taylor, and S. R. Wilson.

Prof. H. R. Dean, Dr. Gordon Holmes, and Dr. J. P. Hedley were elected Councillors. Dr. K. D. Wilkinson was appointed an examiner in pharmacology and Prof. R. T. Leiper an examiner in tropical medicine and hygiene. Dr. Raymond Crawfurd was re-elected a representative of the College on the committee of management of the Conjoint Board, and Dr. Comyns Berkeley the College representative on the Central Midwives Board. The President announced that the Council had appointed Dr. Robert Cruickshank, of the University of Glasgow, to be Milroy lecturer for 1933, and that Prof. Edward Mellanby had accepted the office of Croonian lecturer for 1933. The appointments of Mr. D. H. Patey as Streatfeild scholar and Mr. F. E. Pitt-Payne as Jenks memorial scholar were also announced.

University of London.

University College.—A course of 12 lectures, with practical exercises, on the administration of psychological tests in mental clinics and hospitals, will be given by Mr. W. Stephenson, Ph.D., Miss Constance A. Simmins, and Miss L. Grace Studman, beginning on Tuesday, Nov. 17th, at 3 P.M. The day and hour for the continuation of the course will then be arranged to suit the convenience of those wishing to attend.

On Oct. 21st the degree of Ph.D. in Hygiene was conferred on Dr. Stephen Leonard Baker.

Society of Apothecaries of London.

At recent examinations the following candidates were successful:—

Surgery.—H. W. Davies, St. Mary's Hosp.; G. Handelsman, London Hosp.; M. Iddali, Univ. of Manch.; R. Perkins, St. Bart.'s Hosp.; Z. M. Pierpont, Westminster Hosp.; and S. Ramarao, London Hosp.

Medicine.—S. J. Beligard, St. Mary's Hosp.; L. F. Donnan, Queen's Univ., Belfast; C. Morgan, Charing Cross Hosp.; Z. M. Pierpont, Westminster Hosp.; and B. Rivlin, Middlesex Hosp.

Forensic Medicine.—V. R. T. Baylis, Royal Free Hosp.; M. Ditton, Univ. of Heidelberg and Royal Free Hosp.; L. F. Donnan, Queen's Univ., Belfast; K. Malik, London Hosp.; H. C. Pain, St. Andrew's Univ. and Middlesex Hosp.; and Z. M. Pierpont, Westminster Hosp.

Midwifery.—V. R. T. Baylis, Royal Free Hosp.; K. W. Bruce, Univ. of Durham; G. A. Dingemans, Guy's Hosp.; L. F. Donnan, Queen's Univ., Belfast; H. T. Giblin, St. Mary's Hosp.; H. G. Hind, St. Bart.'s Hosp.; J. L. King, Charing Cross Hosp.; F. C. Moll, Westminster Hosp.; T. D. Norton, Univ. of Sheffield; E. M. F. O'Donovan, Royal Free Hosp.; H. Owen, Univ. of Oxford and St. Mary's Hosp.; Z. M. Pierpont, Westminster Hosp.; F. A. Trowbridge, St. Mary's Hosp.; H. A. T. Wells, Guy's Hosp.; and J. C. Williams, St. Mary's Hosp.

The following candidates, having completed the Final Examination, are granted the diploma of the Society entitling them to practise medicine, surgery, and midwifery: H. W. Davies, L. F. Donnan, H. G. Hind, and Z. M. Pierpont.

West London Medico-Chirurgical Society.

A combined clinical and pathological meeting of this Society will be held at 8 P.M. to-day, Friday, Nov. 6th, at the West London Hospital.

(*Continued from previous page.*)

Constituency.	Name.	Position at poll.	Votes registered.
Wilts (Swindon) ..	Rt. Hon. C. Addison†	2	(1) C., 22,756 (2) Lab., 17,962
Welsh Counties.			
Carmarthen (Llanelly)	Dr. J. H. Williams†	1	(1) Lab., 34,196 (2) C., 18,163
Denbigh (Denbigh)	Dr. J. H. Morris-Jones†	U.	Nat. L.
Scottish Counties.			
Dumfriesshire ..	Dr. J. Hunter†	1	(1) L., 26,873 (2) Lab., 7,693
Renfrew (West) ..	Dr. R. Forgan†	4	(1) C., 17,318 (2) Lab., 10,203 (3) Ind., 3,547 (4) N.P., 1,304

C. = Conservative. L. = Liberal. Nat. L. = National Liberal. Lab. = Labour. Nat. Lab. = National Labour. Ind. = Independent. N.P. = New Party. U. = Unopposed.

Royal College of Surgeons of Edinburgh.

Out of 36 candidates entered the following have passed the Final Dental Examination, and have been granted the diploma of L.D.S., R.C.S. Edin. :—

M. J. McGibbon, George Borland, A. E. Daviot, Christine E. Rose, Alastair Macdonald, Andrew Muir, W. J. Wolton, S. L. Drummond-Jackson, R. G. C. van Someren, F. G. Forbes, R. C. G. Zuill, A. B. Morrison, F. A. Edgar, Philip Levine, Abdullah Ismail, A. J. C. McIntosh, and R. C. Elliott.

Queen's University, Belfast.

The chair of pathology, rendered vacant by the departure of Prof. Murray Drennan to Edinburgh, has been filled by the election of Dr. J. S. Young, reader in experimental pathology and assistant director of cancer research in the University of Leeds.

THE honorary freedom of the borough of Holborn has been conferred on Sir William Smith, Principal of the Royal Institute of Public Health, in recognition of his distinguished services to the borough during the past 50 years, and of his eminent services to the public health.

West Riding Association of Edinburgh Graduates.

This association is holding its annual general meeting and dinner at the Midland Hotel, Bradford, on Wednesday, Nov. 11th. The meeting is at 6.45 P.M., and the dinner at 7.30. Prof. D. P. D. Wilkie is to be the guest of the evening. The hon. secretary is Mr. Donald Watson, 33, Manor-row, Bradford.

Occupations of Ophthalmic Patients.

Of the 3848 new patients attending at the Dundee Eye Institution last year, 1094 were school-children, 905 mill-workers, 236 labourers, 142 domestic servants; 85 were children under 12 months.

London Light and Electrical Clinic.

Twelve post-graduate lectures on Physiotherapy will be given at this clinic at 42, Ranelagh-road, S.W., at 8.30 P.M., on Wednesdays from Nov. 11th. The lecturers will be Sir Leonard Hill, F.R.S. (medical superintendent), Dr. H. J. Taylor, Dr. Albert Eidinow, Dr. C. A. Robinson, Dr. H. V. Morlock, Dr. Philip Ellman, and Dr. C. B. Levick. Particulars may be had from the Secretary.

Instruction for D.P.M.

We have received a syllabus of lectures and practical courses to be given from January to May, 1932, at the Maudsley Hospital, Denmark-hill, London, S.E., primarily to candidates for diplomas in psychological medicine. The lecturers and demonstrators are Dr. F. Golla, Capt. S. A. Mann, Prof. W. le Gros Clark, Mr. Charles Geary, Dr. Henry Devine, Dr. Edward Mapother, Sir Hubert Bond, Dr. A. J. Lewis, Mr. R. Foster Moore, Dr. Bernard Hart, Dr. T. Tennent, Dr. F. C. Shrubsall, and Dr. W. Norwood East. Particulars may be had from the director of the Central Pathological Laboratory, at the hospital.

British College of Obstetricians and Gynæcologists.

At the special meeting of the Council on Oct. 23rd, described in our last issue (p. 967), in addition to the conferment of honorary Fellowships, the following were admitted to the ordinary Fellowship of the College :—

Margaret Basden, Frank Cook, Joseph Bernard Dawson, Samuel Walter Maslen Jones, Gordon King, Arthur James McNair, and Ruth Nicholson.

The following were admitted to the Membership :—

Michael Waldo Boone Bulman, Reginald Lionel Downer, Amy Margaret Fleming, Joan Kennedy Rose, Margaret Salmond, and Gerald Spence Smyth.

At a quarterly meeting of the Council on Oct. 24th, it was decided that those who were invited to become Foundation Fellows and Members from Great Britain and the Irish Free State be allowed to accept this invitation up to the time of the annual general meeting in 1932.

Epsom College.

The Council of Epsom College will shortly award two France pensions of £30 a year to medical men. Candidates must be not less than 55 years of age, and their income, independent of any allowance from the College or from the Royal Medical Benevolent Fund, must not exceed £100 a year. The Council will also award one Grewcock pension of £70 a year. In this case there is no limitation as to age, but candidates must be legally qualified medical men who have retired from professional work, and who, in the opinion of the Council, are in need of the pension. There is the same income limit as in the case of France pensioners, and special consideration will be given to the claims of candidates having association with Worcestershire, Lincolnshire, or Carmarthenshire. Forms of application should be obtained forthwith from the secretary, Major W. L. Giffard, 49, Bedford-square, W.C. 1.

Medical Diary

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 9th.—5 P.M., UNITED SERVICES. Wing-Commander H. A. Treadgold: History Taking as a Factor in the Estimation of Physical Efficiency.

TUESDAY.—5 P.M., THERAPEUTICS. Prof. E. C. Dodds: Some Aspects of Ketosis. 8.30 P.M., PSYCHIATRY. Dr. Bernard Hart: Psychology and Psychiatry. (Presidential address.)

WEDNESDAY.—5 P.M., SURGERY: SUB-SECTION OF PROCTOLOGY. Mr. W. S. Perrin: Some Landmarks in the History of Rectal Surgery. (Presidential address.) HISTORY OF MEDICINE. Members of this Section are specially invited to attend.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 4.30 P.M.) Mr. Cecil P. G. Wakeley: 1. Plasma Cell Myeloma of the Spine. 2. Malignant Palatine Tumour. Mr. Eric A. Crook: 3. Tumour of Testis. Dr. Terence East: 4. Tumour of Lung and Dextrocardia. 5. Hemihypertrophy and Telangiectasia. Dr. A. M. Schwartzman: 6. Vasomotor Disturbance. 8.30 P.M., OPHTHALMOLOGY. (Cases at 8 P.M.) Mr. Rugg-Gunn: Some Points in the Fitting of Contact Glasses. Cases will be shown.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Nov. 9th.—8 P.M., Clinical Evening.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, Nov. 10th.—9 P.M. (at the National Institute of Child Psychology, 19, Warwick-crescent, W.), Dr. Leonard Findlay and Dr. Margaret Lowenfeld: Work of the Institute.

BIOCHEMICAL SOCIETY.

FRIDAY, Nov. 13th.—3 P.M. (at the Imperial College of Science and Technology, South Kensington). Communications: T. Moore: High Potency Vitamin A Concentrates. S. H. Piper: X Ray Analysis of Certain Long Chain Paraffins, Ketones, and Alcohols. A. C. Chibnall: The Metabolism of Plant Waxes. G. H. Bell and A. R. Craig Paterson (introduced by A. Hunter): A Chart for pH Calculations. J. A. B. Smith: The Glyceride Fatty Acids of Certain Forage Grasses. C. R. Harington and S. S. Randall: Synthesis and Properties of *i*-β Hydroxyglutamic Acid. W. L. Davies: The Inactivation of Lipase in Dairy Products by Traces of Heavy Metal Salts. J. Pryde and R. T. Williams: The Structure of Borneol Glucuronic Acid Synthesised *in vivo*. T. S. G. Jones and E. T. Waters: A Note on the Sugar of the Nucleic Acid of *Bacillus tuberculosis*. H. J. Phelps: The Influence of Hydrogen-ion Concentration on the Response of Tissues to Histamine. P. V. McKie: The Nitrogen Metabolism of the Lupin Seedling. A. C. Chibnall and R. G. Westall: The Estimation of Glutamine in the Presence of Asparagine. J. M. Gulland and W. H. Newton: Observations on the Purification of the Oxytocic Principle of the Posterior Lobe of the Pituitary Gland. Demonstrations: S. H. Piper and A. C. Chibnall: Apparatus for Distillation in High Vacuo of Substances with a High Melting Point.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, Nov. 10th.—5 P.M., Dr. James Collier: Development of Neurology from the Nineteenth Century. (Last FitzPatrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Nov. 9th.—5 P.M., Mr. R. Davies-Colley: The Border-line Tumours of Bone.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 9th to SATURDAY, Nov. 14th.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Special Post-graduate Course in Ophthalmology. Clinical instruction every afternoon 2.30–4.30 P.M. Special demonstrations on Mon., Wed., and Thurs. at 5 P.M.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. All-day post-graduate course in medicine, surgery, and gynæcology. Demonstrations and lectures.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Free lecture on Wed., at 4 P.M. by Lord Moynihan on Gastric and Duodenal Ulcer.—In connexion with the M.R.C.P. Course of lectures: on Mon. Nov. 9th and Wed. 8.30 P.M. Dr. Maurice Cassidy on Prognosis in Heart Disease.—ROYAL CHEST HOSPITAL, City-road, E.C. Free post-graduate demonstration by Dr. H. B. Day on Wed., 2.30 P.M.—ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, free post-graduate demonstration by Mr. R. Y. Paton in the Out-patient Department on Thurs. at 3 P.M.—Further particulars from the Fellowship of Medicine.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

TUESDAY, Nov. 10th.—5.15 P.M., Miss Harriette Chick, D.Sc.: Vitamins and Disease.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Nov. 9th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Mr. Leslie Paton: Papillœdema (2).
TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: The Surgery of the Posterior Fossa (2).
WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Some Problems of Sensation (2).
FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Bernard Hart: Some Disorders of Memory (2).

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, Nov. 9th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.
TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.
WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.
THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.
FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.
SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients: Children's Medical Out-patients.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL Denmark-hill, S.E.
THURSDAY, Nov. 12th.—9 P.M., Dr. T. East: Recent Views on Cardiology.

KING'S COLLEGE, Strand, W.C.
THURSDAY, Nov. 12th.—5 P.M., Mr. W. Robson: Protein Metabolism. (First of four lectures.)

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Nov. 11th.—4 P.M., Prof. Winifred Cullis: Health of the Woman Citizen.
THURSDAY.—4 P.M., Prof. Leunbach (Copenhagen): Grafenberg "Silver Ring" and inter- and intra-uterine pessaries. (With Illustrations.)

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Nov. 13th.—4 P.M., Mr. F. W. Watkyn-Thomas: Lateral Sinus Thrombosis.

ST. MARK'S HOSPITAL, City-road, E.C.
THURSDAY, Nov. 12th.—4.30 P.M., Dr. J. B. Alexander: Mucous Colitis.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.
WEDNESDAY, Nov. 11th.—4 P.M., Dr. C. O. Hawthorne: Ophthalmology and General Medicine.

ST. PAUL'S HOSPITAL, Endell-street, W.C.
WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. N. Mutch: Diuretics.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ousely-road, Balham, S.W.
WEDNESDAY, Nov. 11th.—4 P.M., Dr. J. P. Martin: Examination of the Nervous System.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Nov. 10th and following THURSDAY.—5 P.M., Dr. A. Whitfield: Tuberculosis Cutis. (1).

CHADWICK PUBLIC LECTURES.
FRIDAY, Nov. 13th.—7.30 P.M. (at Gateshead Town Hall), Sir Robert Philip: The Outlook on Tuberculosis—Then and Now.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.
WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. C. Jacobs: Glaucoma.

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardman-street, Deansgate.
WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. Vernon Smith: Hypertropic and Atropic Rhinitis.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Nov. 12th.—11 A.M., Dr. G. J. Langley: Clinical Demonstration. 4.15 P.M., Mr. J. Morley: Cancer of the Stomach. (By invitation.)

MANCHESTER ROYAL INFIRMARY.
FRIDAY, Nov. 13th.—4.15 P.M., Mr. C. Roberts: Demonstration of Surgical Cases.

ST. MARY'S HOSPITAL, Whitworth-street, Manchester.
TUESDAY, Nov. 10th.—4.15 P.M., Prof. W. Blair Bell: Present and Future of the Science and Art of Obstetrics and Gynæcology. (Lloyd Roberts lecture.)

UNIVERSITY OF SHEFFIELD.
FRIDAY, Nov. 13th.—3.30 P.M. (At the Royal Infirmary.) Mr. R. St. L. Brockman: Acute Intestinal Obstruction.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.
WEDNESDAY, Nov. 11th.—4.15 P.M., Prof. G. B. Fleming: Medical Cases.

THE FACULTY HALL, St. Vincent-street, Glasgow.
TUESDAY, Nov. 10th.—4 P.M., Dr. J. Cowan: Valvular Disease of the Heart.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. P. £300.
All Saints' Hospital (for Genito-Urinary Diseases), 91, Finchley-road, N.W.—Hon. Surgical Registrar.
Bedford County Hospital.—1st H.S. At rate of £165.
Birmingham General Hospital.—Res. Surg. O. £180.
Birmingham Mental Hospital.—Jun. Asst. M.O. £350.
Birmingham, Queen's Hospital.—Visiting Anæsthetist. 100 gns. Also Pathologist. £100.
Bodmin, Cornwall Mental Hospital.—Second Asst. M.O. £350.
Brighton, Royal Alexandra Hospital for Sick Children.—H.P. £100.
Brookfield Orthopædic Hospital, Hale End, Woodford Green.—Anæsthetist.
Burnley, Victoria Hospital.—H.P. At rate of £150.
Burton-on-Trent General Infirmary.—Sen. H.S. £200.
Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency O. £130.
Cardiff City Mental Hospital, Whitchurch.—Deputy Med. Supt. £700.
Cardiff Royal Infirmary.—H.S. to Ophthalmic Department. Also Aural H.S. and Cas. Surg. O. All at rate of £75.
Cardiff, University College of South Wales and Monmouthshire. Lecturer and Demonstrator in Anatomy. £500.
Cardiff, Welsh National School of Medicine.—Secretary. £400.
Chester, County Mental Hospital.—Jun. Asst. M.O. £350.
Colchester, Essex County Hospital.—Asst. H.S. £120.
Dewsbury County Borough.—M.O.H. and School M.O. £900.
Evelina Hospital for Children, Southwark, S.E.—H.S. At rate of £120.
Hellingley, East Sussex County Mental Hospital.—Jun. Asst. Res. M.O. £350.
Hôpital Français, 172, Shaftesbury-avenue, W.C.—Jun. Res. M.O. £100.
Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and H.S. Each at rate of £100.
Hospital for Women, Soho-square, W.—Pathologist and Registrar. £100.
Huddersfield County Borough.—Asst. School M.O. £500.
Ilford Borough.—Asst. M.O.H. £400.
Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.
Kingston-upon-Hull Corporation.—Sen. Asst. M.O.H. £800.
Kingston-upon-Hull.—Res. M.O. for City Hospital, Cottingham. £350.
Lancaster, County Mental Hospital.—Asst. M.O. £500.
Lancaster Royal Infirmary.—Jun. H.S. £130.
Leicester, Leicestershire and Rutland Mental Hospital, Narborough. Asst. M.O. £350.
Liverpool and District Hospital for Diseases of the Heart.—H.P. At rate of £100.
L.C.C. Mental Hospital Service.—Asst. M.O. £475.
London Jewish Hospital, Stepney Green, E.—Res. M.O. and Cas. O. Each at rate of £150. Also Jun. Res. M.O. At rate of £100.
Lucknow University.—Professor of Anatomy. Rs.1450 per mensem.
Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.
Manchester Babies' Hospital, Burnage-lane, Levenshulme.—Sen. Res. M.O. At rate of £125.
Manchester, St. Mary's Hospital.—Jun. Asst. M.O. for Children's Out-patient Dept. At rate of £50.
Margate and District General Hospital.—Res. M.O. £150.
Maudsley Hospital, Denmark-hill, S.E.—First Asst. M.O. £750.
Middlesex County Council.—Asst. M.O. £600.
Miller General Hospital, Greenwich-road, S.E.—Out-patient Officer. At rate of £150.
Mount Vernon Hospital Northwood, Middlesex.—Res. M.O. £250.
New Zealand, University of Otago and Dunedin Hospital.—Sen. Res. Surg. and Medical Officers. Each £500.
Parbold, Lancs, Wrightington Hospital.—Asst. Med. Supt. £450.
Plymouth, South Devon and East Cornwall Hospital.—Radium Officer. £600. Also Res. Surg. O. and H.P. At rate of £150 and £120 respectively. Also Res. Anæsthetist and H.S. Each at rate of £100.
Preston, Bidduph Grange Orthopædic Hospital.—Sen. and Jun. H.S. At rate of £250 and £150 respectively.
Queen's Hospital for Children, Hackney-road, E.—Surgeon to Ear, Nose and Throat Dept.
Reading, Royal Berkshire Hospital.—Res. M.O. for Blagrave Branch. At rate of £150.
Rotherham Hospital.—Sen. H.S. £200.
Royal Northern Hospital, Holloway, N.—H.S. At rate of £70.
Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £180.
St. Helens Hospital, Lancs.—H.S. £200.
St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Hon. Jun. Med. Reg.
St. Mary's Hospital, W.—Hon. Orthopædic Surgeon.
St. Thomas's Hospital Medical School, S.E.—Professor for the University Chair of Medicine. £2000. Also Pathologist to Medical and Surgical Units. £400.
St. Thomas's Hospital, S.E.—Two Surg. Regs.
Sheffield Royal Hospital.—Two Asst. Cas. O's. Each at rate of £80.
Taunton and Somerset Hospital.—Asst. H.P. At rate of £100.
Truro, Royal Cornwall Infirmary.—H.S. £170.
West Riding of Yorkshire C.C.—Three Consultant Tub. O.'s. Each £750.
Willesden General Hospital, N.W.—Cas. O. and H.P. At rate of £120 and £100 respectively.
Woking and District Victoria Hospital.—Res. M.O. At rate of £100.

NOTES, COMMENTS, AND ABSTRACTS

FEMALE CIRCUMCISION AND INFIBULATION.

BY JAMES H. SEQUEIRA, F.R.C.P., F.R.C.S.,
CONSULTING PHYSICIAN TO THE SKIN DEPARTMENT, LONDON HOSPITAL.

THE cabled report of the Conference on African Children which has just reached Kenya shows that the subject of female circumcision is still attracting attention. It would appear that while recognising the difficulty of prohibiting a practice deeply engrained in the native life, the Duchess of Atholl, M.P., has put forward the following suggestions:

(1) That all Colonial Governments should be pressed to make inquiries as to where the custom existed, in what form, and for what purpose.
(2) To consider how they could give legal protection to any girl who desired to be exempt from it.
(3) To consider what facilities could be given to girls who had reached puberty to make a statutory declaration if they wished to avoid circumcision.
(4) To take every opportunity to draw the attention of native persons and interests to the harmful effects of this practice on the race.

The origin of this movement is well within the memory of those who have followed the recent history of Kenya. It is based upon the unfortunate results which attended the action of certain missions in attempting to control, by means of prohibition, the practice of female circumcision among their adherents; the result being that it was found impossible to find husbands for uncircumcised girls.

This problem is a very old one. It arose in connexion with the Roman Catholic Mission to Abyssinia in the sixteenth century. H. Ploss[1] tells us that the missionaries deeming female circumcision to be a pagan rite forbade it among their converts. The result was that no Abyssinian would marry them. In this dilemma the matter was referred to Rome, and the College of the Propaganda sent out a surgeon to investigate and report. He formally declared the operation to be surgically necessary. The missionaries therefore permitted the continuance of the rite. In justice to the surgeon it must be noted that a congenital hypertrophy of the pudenda is common in Abyssinian women.

The recent trouble in the Colony of Kenya could have been avoided by attention to information which is readily accessible, and a more complete study disposes of most of the suggestions of the conference.

The Operation.

Judging from the speeches which have been reported from time to time there appears to be an impression that the operation of female circumcision is limited to a few African tribes. This is far from the truth, for we have reliable information that the practice is very widely spread. So widely spread, in fact, that it seems impossible that it could have arisen from a single centre. The following list, which is admittedly far from complete, shows the geographical distribution:—

Africa.—Ancient Egypt.—Mohammedans: Gallas, Abyssinians, Waboni, Wassania, Wanyika, Agow, Darfat, Gonga, Sarakolese, Nubians, Balab-Sudan, Sennaar. Non-Mohammedans: The Bantu tribes of Kenya, Masai (Nilotic-Hamitic); Susu, Mangingo, Peuhls; some Bechuanas; Babuk, Sierra Leone, Benin, Akra, Old Calabar, Loango.

Asia.—Arabs, ancient and modern; Kamkatchkans; Malays of East Indian Archipelago, Alfurese Archipelago (most islands).

America.—Totonacs (Eastern Mexico); Chuncho, Pano, Tunka, and all tribes on the Ucayele (Peru), Tecuna (Western Brazil).

Australia.—All tribes from Urabunna in the south through the continent to the western shores of the Gulf of Carpentaria.

Europe.—One sporadic occurrence in the heretical sect of the Skopizy or circumcisers of Russia.

This list shows that while Africa shows the widest distribution, no continent is or has been exempt. The absence of the practice in the huge populations of India, China, and Japan has doubtless a religious basis.

Varieties of the operation.—(1) A simple gash is made in the pudenda with a flint knife in Eastern Mexico. (2) Clitoridectomy is performed in most of the African tribes. A stone or razor is used. (3) Clitoridectomy, together with the removal of parts of the labia minora, is performed by certain African tribes (*vide infra*). (4) Introcision or cutting open the vagina is performed in Australia in those tribes in which *arilthα* or splitting the urethra in males is practised. In its more developed phase arilthα produces an artificial hypospadias. The deformity of the organ is so great that a barbarous operation on women, involving a tear of the perineum, is performed to permit coitus.

As so much attention has been focused upon ritual female circumcision in Kenya Colony, it may be of interest to note certain variations in the different tribes there:—

(*a*) A slight operation unlikely to produce after-effects obtains among the Digo, Teita, Bantu Kavirondo, Giriama, Watende, Wakamba, Kisii, Kitosh, Arabs, Swahili.
(*b*) A more severe operation with a proportion probably of after-effects is practised by the Masai, Nandi, Kamasia, Suk, Elgeyo, Njemps, Samburu, Dorobo, Lumbwa.
(*c*) A mutilating operation with possibly a high percentage of serious after-effects occurs among the Somali, Meru, Embu, Chuka, Kikuyu.

The ablated parts are usually buried but are sometimes hidden in trees.

Circumcision is not practised among the Nilotic Kavirondo, Turkana, and in two small tribes (Rendile and Moram), unless perhaps where Islamised.

Infibulation is performed most frequently in the races in the north-east of Africa—viz., Gallas, Somali, Massua, Sudanese of Kordofan, and Sennaar. In Asia it is practised by the Mohammedan Malays and was in use among the ancient Arabs. It consists in the uniting of the labia by suture after circumcision. A small aperture is left for urination and menstruation. At marriage the orifice is forcibly reopened, and additional laceration is necessary at parturition. Infibulation is sometimes repeated when the husband goes on a journey, a practice reminiscent of the mediaeval knight who was said to take with him the key of his wife's "girdle of chastity."

The word "infibulation" is derived from the name given to the Roman practice of fastening a fibula or clasp through the prepuce in front of the glans to prevent sexual congress.

The age at which circumcision is performed varies very much, and a valuable list will be found in the Encyclopædia of Religions and Ethics (vol. iii., p. 668). The variation is seen in the following examples. Abyssinians, about the eighth day; Somali, from three to four years; in Upper Egypt, nine or ten years; in Australia, generally from 14 to 15. Among the chief Kenya tribes, puberty. In Loango the operation is performed eight days before marriage.

Where it is practised the rite applies to all the women of the tribe. There is no evidence anywhere of its being reserved, like the operation on the male in certain peoples, to rulers, priests, &c. Among many tribes the operation is performed en masse, and its importance is testified by feasts, dances, &c.

The operator.—In some races the operator is a male: the priest, the fetish doctor or the barber, and sometimes a relative. Most frequently, however, the

[1] Das Kind, vol. i., p. 380.

office is delegated to a woman, and the wife of a priest or of a blacksmith may be chosen. (In some tribes the smith is supposed to be invested with peculiar powers, and he operates on the boys, his wife being appointed to the girls.) Among the Masai, Wakamba, and Akikuyu old women are the operators. The same practice obtains among the Malays and Peruvians.

Origin and Meaning.

It is remarkable that with such a widespread operation as circumcision no people seems to have any legend or theory as to its origin. This applies both to the rite in the male and in the female. All that can be learned is that it is an ancestral custom. Many theories have been put forward, and some deserve discussion.

I think we may dismiss Herbert Spencer's suggestion that ritual circumcision was a mark of subjection. In old Egypt it appears to have been a mark of distinction, and was reserved for rulers and priests. It has been surmised that the operation was introduced as a sanitary measure, but its great antiquity and its practice in some of the races mentioned seems to negative this view. Moreover, this reason would not apply in the case of the female. There seems to be no doubt that the rite was first performed on the male. There is considerable evidence in favour of a religious significance, and that a *sacrifice* was made of part of the body for the salvation of the whole. Some references in Holy Writ indicate that it was "an outward and visible sign of an inward and spiritual grace"—(e.g., "circumcision of the heart." Deuteronomy xxx., v. 30; Romans ii., v. 29, &c.). Some authorities look upon the operation as a sacrifice to the deity presiding over fertility, but it is questionable if it was introduced to increase sexual gratification.

There is no doubt that in both sexes circumcision was and is looked upon as an *initiation* into the tribe. As a rule an uncircumcised girl cannot enter society. Mohammedans who observe the rite do not permit women to enter the mosque until after its performance. In ancient Egypt girls could not marry or inherit property before submitting to the operation. As already indicated, its non-performance is still held by certain tribes to render a woman unfit for marriage. It is said to be a dire insult to apply the term "uncircumcised" to an Abyssinian woman, and in Old Calabar it is ground for divorce. Fortitude during the ceremony is greatly esteemed by the relatives and others present, but it seems hardly likely that such an ordeal was devised as a test of endurance as some have suggested.

One other aspect demands a few words. It has been supposed that the origin of the operation was to check sexual desire before marriage. We know very little of the sexual life of many tribes, but there is reason to believe that it plays an important part. W. J. Jago [2] was of opinion that the public circumcision of boys at puberty had a profound psychological effect, the sexual trauma causing "introversion." By this he accounted for the change from a bright childhood to dullness and apathy after puberty common in some African tribes. We have no knowledge of a similar effect on women. Some tribes allege that ritual circumcision was introduced to avert a sort of mania from which the women had previously suffered. It is interesting in this connexion to recall that about 50 years ago clitoridectomy was performed by a London surgeon for hysteria and erotomania. The operation aroused much opposition, and was condemned by the profession generally as unscientific.

Lastly, there is no doubt that the clitoris and labia minora are hypertrophied in certain peoples. Such hypertrophy may be congenital, as in some of the races in North-east Africa, or acquired by excessive onanism as in some Malays. Prof. Ivar Broman, of Lund University, informed me that certain native women in South Africa produce a remarkable enlargement of the lesser labia by manipulation.

[2] Kenya and East African Med. Jour., April, 1928.

Medical and Legal Aspects.

At first sight there does not appear to be any more reason for deploring and discouraging the rite of circumcision in the female than in the male. Taken as sacrifices or as initiations, they are no one's business but the subject's. But one cannot be blind to the fact that just as the operation in the male has been attended by dangers and even death, the rite as performed under certain circumstances on girls is fraught with grave risks.

Among the Kikuyu, Meru, Embu, and Chuka tribes the operator is an old woman, and unclean instruments are often used. Not only is the clitoris removed but there is a severe ablation of the labia, and often partial introcision. As a result sepsis is far from uncommon, and grave scarring may occur. In some instances a mass of tough cicatricial tissue has been found under the pubic arch, and this constitutes a serious danger. Among the conditions which have come to the notice of the profession may be mentioned dyspareunia and retention of urine, with the formation of calculi. In the museum of the pathological department in Nairobi there are specimens of *vaginal* calculus which were removed from septic pockets resulting from circumcision. With pregnancy the dangers are enhanced, and the native midwife (who is quite untrained) performs episiotomy with a razor to permit the birth of the child. Cases of dystocia of this type come under care in the maternity and mission hospitals, and there can be no doubt that there are fatalities both in the mothers and infants from this cause. It must, however, be acknowledged that a large number of women even in the reserves mentioned are delivered without grave risk.

We have official information that the law as it exists at present in the Colony of Kenya affords ample protection to any woman who does not desire to be circumcised. But it is obviously unlikely that any girl, at the age at which puberty occurs in the tropics, would seek to avail herself of the law's protection, except at the instance of some outside organisation such as a mission. In many tribes the female children are kept almost in seclusion in or about the hut. They are an asset worth so many cattle or goats, and great care is taken of them. In these, as in all primitive peoples, it is considered a disgrace for a woman not to marry. But the law cannot compel a man to marry an uncircumcised woman.

The Future.

Coercive measures dealing with age-long customs and beliefs are not only futile but may be dangerous. An elevation of public opinion must precede any radical change in the customs of these races. No one doubts that the limitation of the operation to a simple clitoridectomy would be of enormous benefit. Indeed, there is considerable evidence that the natives themselves are beginning to realise the harmful effects of mutilating operations. It is most unfortunate that the development of this more enlightened attitude should have received a serious set-back by the action of certain missions.

As a rule, British administrations have followed a policy of non-interference in matters of this type, and the wisdom of the College of the Propaganda may be commended to benevolent enthusiasts who would endeavour to force the hands of the Executive.

In this, as in many matters of policy in Kenya, much is expected from the development of the native district councils. In the very short time that they have been in existence these bodies have shown their appreciation of the efforts of the medical officers in the reserves to improve the general health. In time we may look forward to the coöperation of maternity nurses with the doctors among these tribes, and in this way the risks may be better understood. At the moment we may hope that the guidance of experienced administrators may be able to influence

the more enlightened natives with a view to the mitigation of the dangers of female circumcision even if the practice cannot be abolished.

Makuyu, Kenya Colony.

THE FAMOUS MONROS.

AT the centenary banquet of the York Medical Society (see p. 1038) Prof. D. P. D. Wilkie, professor of surgery in the University of Edinburgh, surprised the company by referring to the occasion as the centenary also of his own Chair. This did not seem to accord with popular knowledge of the antiquity of the University of Edinburgh or with its long reputation as a surgical centre. Prof. Wilkie, however, was accurate, and the explanation lies in the famous line of the Monros. Alexander Monro *primus* was professor of anatomy and surgery from 1720 to 1767. Alexander Monro *secundus* held the same office from 1755 to 1817, having been for nearly 12 years his father's coadjutor. He was succeeded by Alexander Monro *tertius*, who held the title from 1817 to 1846, having assisted his father for the previous nine years. In 1831, however, the surgical Chair was separated, the first professor of surgery being J. W. Turner, who was followed a few years later by Sir Charles Bell.

THE INSTITUTION CHILD.

AT a meeting of the Psychological Group of the Medical Women's Federation, held on Oct. 17th, Dr. Margaret Thackrah described her work at a large village home for Dr. Barnardo's children. Here are gathered 1500 girls of all ages and very varied histories. They are grouped in cottages, each holding 25 girls and presided over by a matron, who is always called "mother." They are educated at a school in the village by teachers who come from outside, and when they leave school the great majority of them have another two years' training in domestic work before they go out to service. Of the normal children, and those who give no trouble, Dr. Thackrah sees but little, but the defective and the difficult pass through her hands. Her first surprise was that these were relatively so few. At one time it was customary to scatter the defective girls among the others, with the idea that they would be helped along. This proved a mistake, as in fact they generally became butts, and now they are segregated in special cottages where they are among their equals and can have more intensive care. There is, in Dr. Thackrah's experience, a definite connexion between mental deficiency and "difficulty" in these girls. It is rare to find a difficult child with a normal intelligence quotient, and it is recognised that the worst grade of intelligence quotient is "the late 'seventies." A child of this type feels inferior and therefore becomes aggressive. Feeble-mindedness often becomes apparent only when the girl attempts domestic work.

Dr. Letitia Fairfield pointed out that while domestic work is regarded as ideal for the stupid and backward girl, it is by no means an easy profession, demanding quickness and a sense of responsibility. Many girls do much better in a simple, rather mechanical factory task where they are in contact with things rather than with personalities, particularly if they suffer from what may widely be called a "mother complex," which makes it hard to deal with older women. Dr. Fairfield spoke of the importance of helping the child to face the situation produced by its parentage. In L.C.C. schools, she said, the children are always talked to about their parents and encouraged to correspond with them. No harm can come of it, and if the parent has any decency, the one thing likely to encourage her to pull herself up is the fact that her child is growing beyond her. Dr. J. I. Suttie quoted a case illustrating the psychological difficulty in which children of this type are apt to get if they have no data about their real parents. This little girl had evolved a tremendous fantasy system about her family and the reasons for her being adopted but as soon as she was allowed to meet her mother she adapted at once to her proper place in society. Dr. Fairfield declared that children were likely to develop an unexpressed but very real grudge against society for taking them away from the only warmth and love they had known, and the result might even be a permanent mental arrest. England may lead the way in day-school hygiene, but there is, she said, not a single text-book on residential school work, and no means by which a woman who wants to become a "house mother" can obtain training.

Dr. Thackrah agreed with Dr. Fairfield that for the ordinary girl the best type of "mother" was the "nanny" type of woman—not necessarily highly educated, but with special gifts for the nursery; for the difficult and the defective there was scope for university women if they could be given suitable training.

Appointments

BROOMHEAD, R., M.B., Ch.B. Leeds, F.R.C.S. Eng., has been appointed Hon. Asst. Surgeon, Orthopædic Department, Leeds General Infirmary.

HEALEY, F. H., M.B., Ch.B. Birm., Deputy Medical Superintendent, Derby Borough Mental Hospital.

MCCARROLL, J. C., M.B., B.S. Irel., Chief Assistant, Electrical Department, St. Bartholomew's Hospital.

NORTHFIELD, D. W. C., M.B., B.S., F.R.C.S. Eng., Hon. Asst. Surg. to the Queen's Hospital for Children, Hackney-road, E.

Births, Marriages, and Deaths

BIRTHS.

ANDERSON.—On Oct. 28th, at Manzai, Letchworth, Herts., the wife of Dr. W. B. Anderson, of a daughter.

BARRAND.—On Nov. 1st, the wife of H. J. Barrand, L.D.S., of Saffron Walden, of a daughter.

HEALY.—On Oct. 29th, at Hornsey-rise, Highgate, N., the wife of Dr. M. J. Healy, of a son.

MARRIAGES.

CHAPMAN—CAMPBELL.—On Oct. 28th, at St. John's Church, Dormansland, Surrey, Edward Seymour Chapman, M.D., F.R.C.S.E., Ebberston House, Scarborough, to Margaret Elizabeth (Elma) Campbell, M.B., Ch.B., daughter of Mr. and Mrs. William Campbell, Glasgow.

CHANDLER—KENDALL.—On Oct. 31st, at St. Mary's Church, Hendon, Geoffrey Pretor Chandler, M.D., to Muriel Gladys, only daughter of F. W. Kendall, J.P., and Mrs. Kendall, of Burton-on-the-Water, Gloucester.

MIDDLETON—DEWAR.—On Oct. 29th, at St. Giles Cathedral, Edinburgh, David Skene Middleton, F.R.C.S.E., to Dorothy Urquhart Marr Dewar, younger daughter of the late Alexander Dewar and Mrs. Dewar, Rochester-terrace, Edinburgh.

MORRISON—MCNAB.—On Oct. 26th, at Craignish Parish Church, Robert R. Morrison, M.B., Ch.B., D.M.R. and E. (Camb.), to Kathleen, younger daughter of Mrs. McNab, of Midton House, Howwood, Renfrewshire, and of the late Andrew McNab.

THORNTON—JAMES.—On Oct. 31st, at St. Peter's Church, Bedford, Dr. Frank Sheerman Thornton, to Katharine Dorothy, only daughter of Lieut.-Col. and Mrs. Herbert James, of Linden-road, Bedford.

DEATHS.

DOVE.—On Oct. 26th, suddenly, of heart failure, Percy William Dove, O.B.E. (Mil.), M.B. Lond., of Eastfield, Croydon, aged 68.

HAIR.—On Oct. 31st, at Strathclyde House, Hounslow, Allan Hair, M.R.C.S., L.R.C.P., D.P.H.

HEWER.—On Oct. 24th, Earnshaw Hewer, O.B.E., F.R.C.S., of Stratford-on-Avon.

MACDONALD.—On Oct. 29th, at the Glasgow Royal Infirmary (as the result of an accident), Janet Blair Macdonald, M.B., Ch.B., aged 28 years.

MORALT.—On Oct. 30th, 1931, at Nayland, Suffolk, Marie Alice, M.B., B.S. Lond., daughter of Angelo Moralt, of Munich and London.

SIMPSON.—On Oct. 28th, at Hervey-road, Blackheath, S.E., Colonel Robert John Shaw Simpson, C.B., C.M.G., A.M.S., M.A., M.B., C.M. Edin., aged 73.

WITHERS.—On Nov. 2nd, at Granada-road, Southsea, Hants., Robert Withers, M.R.C.S. Eng., aged 80 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.